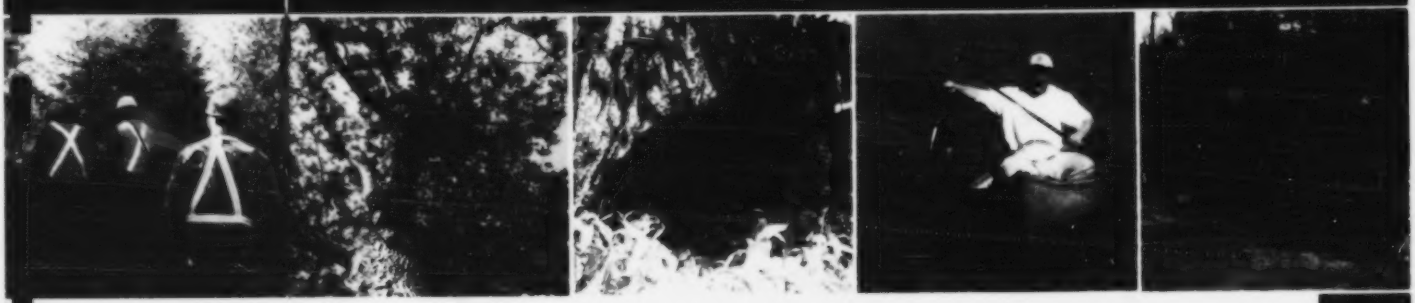
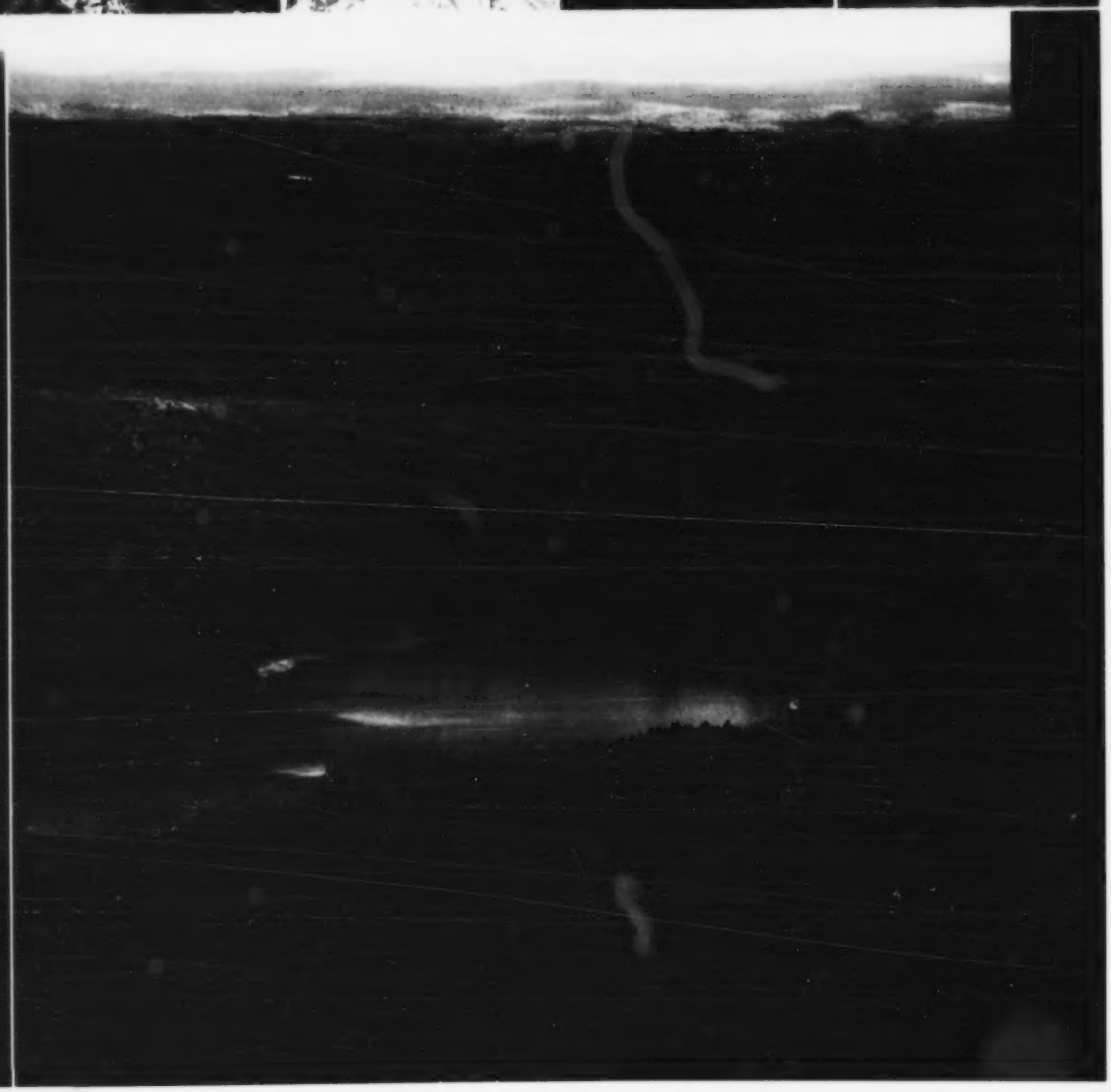
Ontario

Annual Report on Forest Management **2006/2007**





Forest Information Series

Annual Report on Forest Management

For the year April 1, 2006
to March 31, 2007

Minister of Natural Resources
of the Province of Ontario

To his Honour
The Lieutenant-Governor of the
Province of Ontario

May it please your Honour

The undersigned begs respectfully to present to your Honour the Annual Report on Forest Management for the fiscal year beginning April 1, 2006 and ending March 31, 2007.

Donna Cansfield
Minister

October, 2008

Table of Contents

Table of Contents

Index of Figures

Index of Figures

Index of Tables

Executive Summary



The original approval for timber management activities under the *Environmental Assessment (EA) Act* covered nine years from 1994 to 2003. A review of the implementation of the original EA concluded in June 2003, when the Ministry of the Environment (MOE) issued a declaration order. The MOE declaration order extended and amended the 1994 Class EA approval and outlined conditions for forest management on Crown land in Ontario within the area of the undertaking (AOU). One of the conditions required the Ministry of Natural Resources (MNR) to continue to table an annual report on forest management in the provincial legislature.

This is the MNR's twelfth annual report on forest management under an EA approval. This report follows a format which is consistent with the conditions of the 2003 Class EA approval for forest management on Crown lands in Ontario. It covers the fiscal year April 1, 2006 to March 31, 2007.

Ontario's 107.6 million hectare area is comprised of about 88.3 million hectares of land and 19.3 million hectares of water. The AOU, where most forest management activities on Crown land occur, totals 36.5 million hectares of forest. Productive forest on Crown land in the AOU covers about 26.2 million hectares, with only 18.8 million hectares of this area eligible for forest management activities. Ontario also has 7.0 million hectares of productive forest land under private ownership, 14 percent of the province's inventoried productive forest land base. Private forests account for 13.5 percent of Ontario's growing stock, including approximately one-half of the volume of hard maple and "other hardwoods". The focus of this annual report is to provide information on the activities carried out on the eligible 18.8 million hectares of Crown forest in 2006/07.

The *Forest Information Manual* is one of four regulatory manuals required by the *Crown Forest Sustainability Act* (CFSA). This manual describes the requirements for exchanging

information concerning the management of Crown forests between the forest industry and the MNR. Implementation of the *Forest Information Manual* continued during 2006/07. To facilitate information exchange between the MNR and the forest industry a set of technical specifications to support management unit annual reporting was published in 2005/06.

As of April 1, 2007, the AOU was divided into 46 management units. A 47th management unit is comprised of all the pieces of Crown land in southern Ontario outside the AOU.

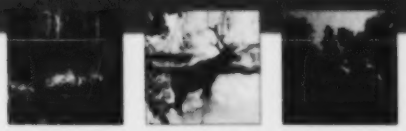
The CFSA, which came into effect in 1994, requires anyone operating in an Ontario Crown forest to ensure the long-term health of the forest so that the benefits from the province's forests are available to future generations. The CFSA requires that an approved Forest Management Plan (FMP) be in place for each management unit. A FMP describes the values of the forest in a management unit, as well as the harvesting, renewal, and other forest management activities that will occur. During 2006/07 several planning teams continued work on FMPs scheduled for renewal in 2008, which will be the second set of plans to be consistent with the *Forest Management Planning Manual* 2004.

The CFSA provides for two types of licences governing the use of forest resources in Ontario, Forest Resource Licences and Sustainable Forest Licences. In 2006/07, there were a total of 3,977 licences in place in Ontario.

The CFSA requires a portion of the money received from the harvest of Crown forests to be designated exclusively for forest renewal activities. The Government of Ontario received a total of approximately $163 million from timber sales, of which approximately $103.2 million went directly to funds designated for the maintenance and renewal of the forest, and for work associated with ensuring the future of the forest.

In 2006/07 forest fires occurred on 55,702 hectares of productive forest in the AOU. Weather, insect, and disease activity also resulted in significant growth loss and mortality.

Harvesting activities took place on 183,793 hectares of forest in 2006/07, generating approximately 18.8 million cubic metres of wood. In 2006/07, 39 management units within the Boreal Forest reported average clearcut sizes ranging from 30 to 2,520 hectares. Maximum clearcut sizes reported ranged from 88 to 25,536 hectares. There were 1,136 active clearcuts during the year, of these 117 (10%) were greater than 260 hectares in size. Nine management units within the Great Lakes-St. Lawrence Forest reported average clearcut sizes from 11 to 142 hectares. Maximum clearcut sizes ranged from 38 to 1027 hectares in



size. There were 149 active clearcuts in this region during the year, 4 (3%) of which were larger than 260 hectares.

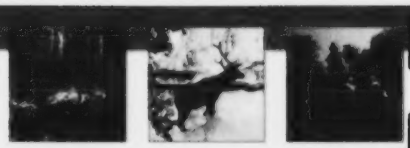
Renewal of the forest occurs both naturally and with assistance. In 2006/07, natural regeneration, both even and uneven-aged, took place on 110,135 hectares of land. Assisted renewal was carried out on 102,567 hectares. Site preparation activities, through mechanical means, use of herbicides, and prescribed burning, were completed on another 59,586 hectares. Tending activities were also conducted to improve the quality and growth of some areas of the forest. During 2006/07 tending activities, such as pre-commercial thinning, were carried out on 84,721 hectares of forest.

Free-To-Grow (FTG) assessments are an effectiveness monitoring tool that indicate the success of silvicultural treatments and provide information to project the future forest condition. In 2006/07, approximately 197,000 hectares were assessed. Of the total area assessed for FTG, 43 percent was approved as having achieved the target FTG standard. An additional 47 percent was approved as having achieved an alternate accepted FTG standard.

Forest management operations require a complex system of primary and secondary roads, the cost of which was borne largely by forest companies during 2006/07. A total of 561 kilometres of new primary and branch roads were constructed in Ontario forests. In 2006/07 the MNR provided $75.0 million dollars for road construction and maintenance activities. Maintenance work increased significantly, and occurred on 20,917 kilometres of roads.

The forest industry is required to report the results of their compliance inspections to the MNR. MNR conducts inspections to verify all instances of non-compliance reported by companies. The MNR also carries out random and other planned inspections of forest operations. Of the 5,968 inspections undertaken across the province, companies conducted 4,780 and the MNR completed 1,188. The vast majority of the inspections reported compliant operations. A total of 291 remedial actions were applied by the MNR, including warnings, "stop work" orders, and administrative penalties.

All management units within the AOU must be audited at least once every five years. In 2006/07, Independent Forest Audits were undertaken on 15 management units. Audit reports were prepared for the Temagami Management Unit and the Algoma, Armstrong, Bancroft Minden, Black River, Black Sturgeon, French-Severn, Lac Seul, Lake Nipigon, Magpie, Nipissing, Pic River Ojibway, ShiningTree, Spruce River and Sudbury forests. All 2006 audit reports (except the Pic River Ojibway Forest) concluded that the forests were



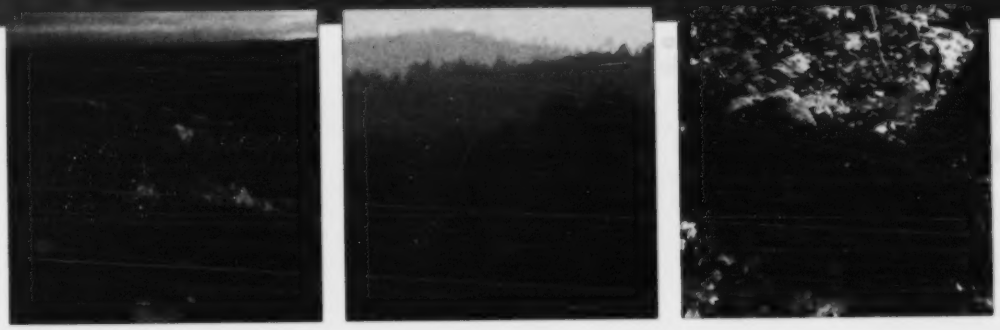
being managed in general compliance with legislation and policy, with licence requirements, and with principles of sustainable forest management during the term of the audit. Twelve of the audit reports recommended that the sustainable forest licence should be extended for a further five-year term. The ShiningTree Forest has been amalgamated into the Timiskaming Forest, therefore no licence extension recommendation was made. The audit team noted however, that the results of this audit were generally positive and under normal circumstances would have led to a recommendation to extend the licence. The audit report for the Pic River Ojibway Forest recommended that the Minister defer the licence extension until 2010, at which time it will be possible to verify satisfactory progress on five "crucial" recommendations. The Temagami management unit is managed by the Crown and is therefore not eligible for extension of a sustainable forest licence.

Forest certification involves an independent third party evaluating forest management systems and/or operations against a prescribed ecological, economic and social standard. During the 2006/07 fiscal year three additional forests achieved certification, two under the Forest Stewardship Council and one under the Sustainable Forestry Initiative. In addition, all previously registered/certified forest units demonstrated ongoing conformance to their selected certification systems during the fiscal year.

A primary monitoring responsibility of the MNR is to assess the effects of forest management activities on the forest ecosystem over the long term. This report describes policies, procedures, scientific studies and research that the MNR is undertaking to ensure that forest management guides, data, methodologies, and underlying science are available to effectively monitor and manage forest management activities.

The final chapter of this report describes the efforts of MNR districts, the forest industry, and First Nations communities to identify and implement ways of achieving a more equal participation by Aboriginal peoples in the benefits derived through forest management planning.

Introduction



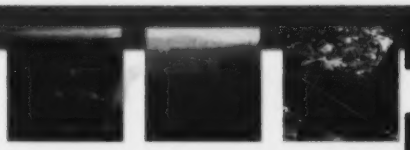
In 2003 an Environmental Assessment (EA) declaration order extended and amended the 1994 *Environmental Assessment Act* approval to allow MNR to continue forest management on Crown lands in Ontario, subject to certain conditions. This declaration order (as amended, MNR-71/2) covers a wide range of activities relating to forest access, harvest, renewal, maintenance and their planning on Crown land. This is the third annual report that has been produced consistent with the current EA declaration order.

Annual Report on Forest Management

This is the 12th annual report on forest management, covering the period April 1, 2006 to March 31, 2007. This report contains, in part, a summary and analysis of 46 management unit reports which were submitted to the MNR in November 2007. The data is subject to ongoing improvement and the reader is advised that changes in data may occur as improvements are made to the dataset. New or updated data and information submitted since the previous annual report on forest management are included in this report. Errors or omissions noted since the publication of the previous report are also corrected or updated in this report.

Overview

This annual report provides information to help in understanding how Ontario's Crown forests are being managed, as well as baseline information to compare with future forest management activities and annual reports. Five-year tables and graphs are included in this report to provide updated information and a means to view and assess trends in the data.



The chapters of this annual report are described as follows:

- Chapter 1 provides background and a summary of the forests of Ontario, the legislative framework which regulated forest management planning activities in 2006/07, and a description of private forest land initiatives in Ontario.
- Chapter 2 summarizes forest industry output and employment, Ontario's stumpage and licence system, and harvest activities on private woodlands.
- Chapter 3 summarizes forest disturbances in Ontario, from fire, severe weather, insects and disease.
- Chapter 4 describes the silvicultural systems used in Ontario, and summarizes forest harvest activities.
- Chapter 5 summarizes forest renewal efforts and silvicultural effectiveness monitoring results.
- Chapter 6 presents a summary of road construction and maintenance activities, and the funding provided for these activities.
- Chapter 7 presents a description of the system employed by MNR to monitor operational compliance with legislation and in accordance with approved plans.
- Chapter 8 describes and summarizes the results of Ontario's Independent Forest Audit Program.
- Chapter 9 outlines the status of forest certification in Ontario. Forest certification is a market-oriented system which evaluates forest management systems and/or operations in reference to ecological, economic and social standards.
- Chapter 10 presents progress reports on selected MNR research, scientific studies, and technical and policy development programs.
- Chapter 11 concludes with an update on the MNR's progress in negotiations with Aboriginal peoples regarding opportunities for increased participation in the benefits provided through forest management planning.

Ontario's Forests

Throughout this document, Crown land refers to land held in trust by the province for the people of Ontario and, in general, managed by the MNR. Statistics found in this chapter are from provincial inventories compiled in *Forest Resources of Ontario 2006*. *Forest Resources of Ontario 2006* should be consulted for a more complete description and summarization of the provincial inventories.

Ontario is 107.6 million hectares in size; 88.3 million hectares of this area is land and 19.3 million hectares is water. Figure 1a illustrates the broad land classes in Ontario. Non-productive and productive forests comprise over sixty-five percent of the province (Figure 1b). This is a significantly higher proportion than the remainder of Canada, where forests represent only forty-two percent of the country's total area.

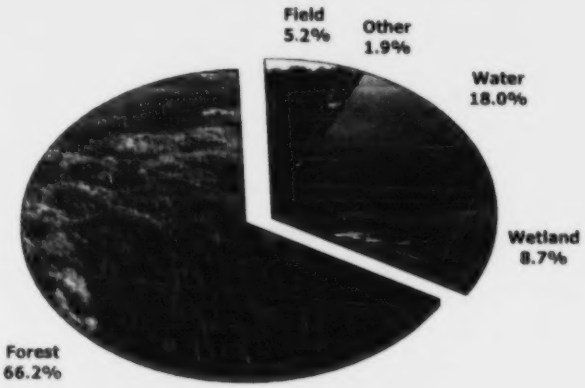


Figure 1a - Total land and water area by land classes in Ontario

Three major land ownership categories are described in this report - Crown, parks, and private or other owners. Seventy-eight percent of the province's area is Crown or publicly-owned land and water. Provincial and national parks cover an additional nine percent, and privately or federally-owned land and water encompasses the remaining thirteen percent.

The forest area managed for harvest in Ontario is 26.2 million hectares in size. Within this area the net forest area available for forest operations is limited to 18.8 million hectares, or 17.5 percent of Ontario (Figure1b).

For forest management purposes, the province is partitioned geographically, depending on the context.

Subdivisions commonly referenced in this report include:

- Ecological Subdivisions
- Forest Regions
- Ecological Land Classification Regions
- Administrative Subdivisions
- Forest Management Zones
- MNR Administrative Regions and Districts
- Management Units

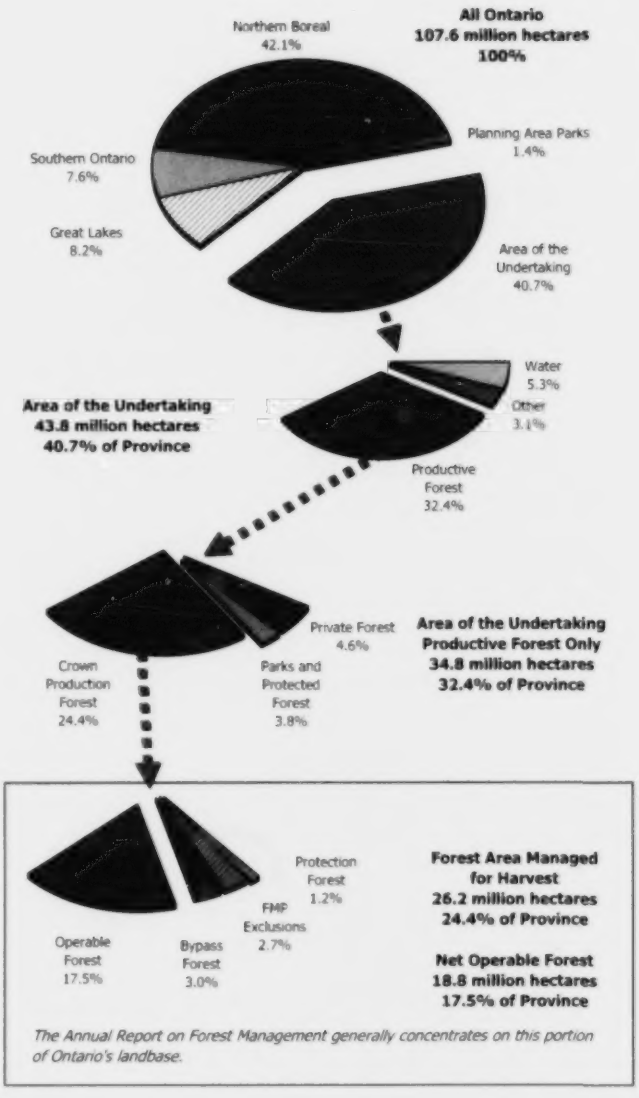


Figure 1b - Ontario's land base

Ecological Subdivisions

Forest Regions of Ontario

Four major forest regions are represented in Ontario - the Hudson Bay Lowlands region in the far north, the Boreal Forest region in Northern Ontario, the Great Lakes-St. Lawrence Forest region in southern and central Ontario, and the Deciduous Forest region in southern Ontario. Over 97 percent of Ontario's population lives within the Great Lakes-St. Lawrence and Deciduous Forest regions.

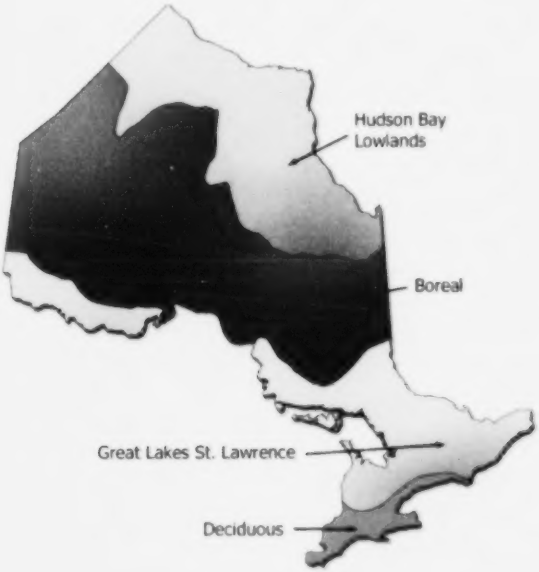


Figure 1c - Ontario's forest regions

Each forest region is characterized by its own climate, forest ecosystems, and associated wildlife species. North-south shifts in temperature and east-west gradients in precipitation largely determine the extent of these forest regions. Natural transition zones also occur between forest regions. As a result, certain tree species may be found in what seem to be inappropriate forest regions. For example, maple or white pine can be found within the southern reaches of the Boreal Forest. A map of the forest regions of Ontario is shown in Figure 1c.

The Hudson Bay Lowlands is one of the largest low-relief expanses of wetlands in the world. With an area of 25.8 million hectares, it is comprised of both treed and open muskeg (74 percent), dotted with thousands of small lakes and ponds. Productive forest cover is less than 17 percent, and is typified by stunted tamarack (also known as larch) and black spruce growing along riverbanks and other well-drained areas. The Hudson Bay Lowlands supports a great variety of wildlife including polar bears, geese, and other animals normally associated with Arctic habitats. The Hudson Bay Lowlands is greatly affected by a cold northern climate, and contains all of Ontario's tundra. The region also contains Ontario's largest park, the 2.3 million hectare Polar Bear Provincial Park. Figure 1d shows an aerial view of a landscape typical of the Hudson Bay Lowlands.

Figure 1d - Treed bog and wetland in the Hudson Bay Lowlands

The Boreal Forest is a world-wide band of conifer-dominated forest stretching across Scandinavia, Russia, Alaska, and northern Canada. In Ontario, the Boreal Forest region extends from the northern limits of the Great Lakes-St. Lawrence Forest to the Hudson Bay Lowlands. With an area of 49.8 million hectares, this forest region is by far the largest in the province.

In the Boreal Forest, the tree species that are present are dictated by the particular soil types and terrain conditions. For example, black spruce and tamarack are often found in poorly drained areas, while trembling aspen, white birch, and jack pine grow on well-drained sites. Black spruce comprises 50 percent of all tree species in the Boreal Forest by growing stock volume.

Most boreal softwoods (jack pine, black spruce, and tamarack) and intolerant hardwoods (trembling aspen, white birch, and balsam poplar) grow in even aged stands. The Boreal Forest is characterized by natural disturbance, heavily influenced by the size, intensity, and frequency of fires that burn across the landscape. Winds also commonly affect Boreal Forest conditions by blowing down trees or forest stands. Insects can defoliate large areas of forest. Figure 1e shows a white birch stand found within the Boreal Forest.

Figure 1e - A typical Boreal Forest landscape

The Great Lakes-St. Lawrence Forest region extends inland from the shores of the Great Lakes and the St. Lawrence River in central and southern Ontario. This forest region represents 25 percent of Ontario's actively managed Crown forest. The greatest concentrations of this forest type occur on the north and east shores of Lake Huron, in the Algonquin Park area, and in the Great Lakes-Boreal transition zone that stretches from Thunder Bay to Fort Frances in northwestern Ontario.

Sugar maple, white pine, red pine, eastern white cedar, hemlock, tamarack, black spruce, white spruce, red oak, white oak, red maple, basswood, ash, poplar, yellow birch, and white birch are all present in this zone. This forest region has thin soils over granite bedrock, and some areas of deep well drained soils. The great diversity of sites and habitat in this region supports many wildlife species. Figure 1f illustrates a yellow birch and maple stand typical of the Great Lakes-St. Lawrence Forest.

Figure 1f - A typical Great Lakes-St. Lawrence Forest landscape

The Deciduous Forest is located in the southern-most part of Ontario, and is the only occurrence of this type of forest in Canada. Situated primarily in smaller pockets of forest on private land and within provincial parks on the north shore of Lake Erie, the Deciduous (or Carolinian) Forest region is found in the most densely populated area of Ontario. This region is now home to more than 25 percent of Canada's population, even though it covers less than one percent of the country's land mass. The region is over 3 million hectares in size, but less than 17 percent is forest. More than 70 percent of this region is agricultural land, while most of the remaining 13% is urban. Forests in this region are now found mostly in locations with low agricultural potential, such as sand plains and bottomlands. Surface deposits ranging from gravel to clay over limestone bedrock. These forest fragments have usually been greatly modified by human activities. Maple, sassafras, walnut, and several varieties of oaks grow here. The Deciduous Forest region generally has the greatest diversity of tree species in Ontario, while possessing the lowest proportion of forest. With its rich forests and warm climate, several unique wildlife species, such as opossum and red-bellied woodpecker, are found in this forest type.

The Deciduous Forest is found on Lake Erie's northern shore, in parks such as Wheatley, Rondeau, and Turkey Point. Figure 1g shows a multi-species hardwood forest with white trilliums in bloom, typical of the Deciduous Forest region in spring.

Figure 1g - A typical Deciduous Forest stand

Ecological Land Classification Regions

The Ecological Land Classification (ELC) system is a hierarchical framework for classifying landscape and site-level ecosystems formed by combinations of geologic, climatic, vegetative, soil, and landform features. At the broadest scale the ELC system is defined by a set of 14 ecoregions. Each ecoregion is further subdivided, resulting in a total of 71 ecodistricts across Ontario. A map illustrating the ecological regions of Ontario is shown in figure 1h.

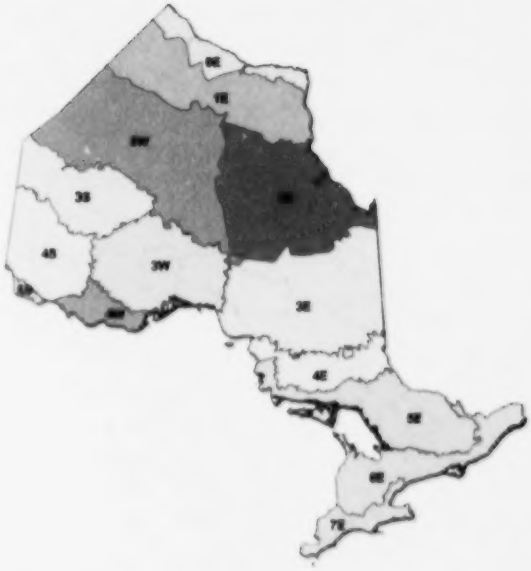


Figure 1h - Ecological regions of Ontario

Figure 1g – A typical Deciduous Forest stand

Ecological Land Classification Regions

The Ecological Land Classification (ELC) system is a hierarchical framework for classifying landscape and site-level ecosystems formed by combinations of geologic, climatic, vegetative, soil, and landform features. At the broadest scale the ELC system is defined by a set of 14 ecoregions. Each ecoregion is further subdivided, resulting in a total of 71 ecodistricts across Ontario. A map illustrating the ecological regions of Ontario is shown in figure 1h.

Administrative Subdivisions

Forest Management Zones

Ontario, comprised of 107.6 million hectares of land and water, is divided into three forest management zones (Figure 1i). The Northern Boreal Forest (42.1 percent of Ontario) describes the large expanse of Boreal Forest and Hudson Bay Lowlands in the far north. The Area of the Undertaking (AOU), 40.7 percent of Ontario, refers to the middle zone where forest management planning and associated operations are currently carried out on Crown lands. Southern Ontario (7.6 percent of Ontario) is an area of mostly private land, where the majority of the population of Ontario lives. The Great Lakes make up the remaining 8.9 million hectares, or 8.2% of Ontario.

Figure 1i - Ontario's forest management zones

The AOU is an area consisting of approximately 34.8 million hectares of productive forest (all ownerships) on which forest management activities are conducted in Ontario. The northern boundary is generally the limit of current commercial operations; the southern limit is generally the limit of forest on Crown land. Crown land within the AOU is subject to the conditions of the Environmental Assessment approval.

Administrative Regions and Districts

MNR administrative region and district boundaries are shown in figure 1j. For administrative purposes, the province is divided by the MNR into three regions, each with a regional office - Northwest Region (Thunder Bay), Northeast Region (Timmins/South Porcupine), and Southern Region (Peterborough). These three regions are subdivided into a total of 26 MNR administrative districts, each with a designated local office. For the purpose of carrying out forest management activities, MNR districts are further divided into individual forest management units.

Figure 1j - MNR administrative boundaries

Management Units

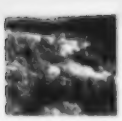
A management unit is an area of forest designated under section seven of the *Crown Forest Sustainability Act*, 1994. MNR Regional Directors approve Forest Management Plans (FMPs) developed for management units, based on direction in the *Forest Management Planning Manual for Ontario's Crown Forests*. A map and list of the management units in effect as of April 1, 2006 is provided in Appendix 1.

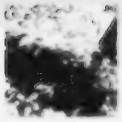
Ontario's Forest Inventory

For this annual report, land cover for the province has been summarized using Ontario Land Cover data. The summary is shown in Appendix 2, using a common set of land classes for the province as a whole, and for the Area of the Undertaking.

Ontario Land Cover Database

The Ontario Land Cover Database is the first land cover classification in Canada to be completed for an entire province entirely from satellite remote sensing data. The Ontario Land Cover data was derived from digital, multispectral LANDSAT 7 Thematic Mapper data





Administrative Regions and Districts

MNR administrative region and district boundaries are shown in figure 1. For administrative purposes, the province is divided by the MNR into three regions, each with a regional office - Northwest Region (Thunder Bay), Northeast Region (Timmins South Porcupine), and Southern Region (Peterborough). These three regions are subdivided into a total of 26 MNR administrative districts, each with a designated local office. For the purpose of carrying out forest management activities, MNR districts are further divided into individual forest management units.

Management Units

A management unit is an area of forest designated under section seven of the *Crown Forest Sustainability Act, 1994*. MNR Regional Directors approve Forest Management Plans (FMPs) developed for management units, based on direction in the *Forest Management Planning Manual for Ontario's Crown Forests*. A map and list of the management units in effect as of April 1, 2006 is provided in Appendix 1.

Ontario's Forest Inventory

For this annual report, land cover for the province has been summarized using Ontario Land Cover data. The summary is shown in Appendix 2, using a common set of land classes for the province as a whole, and for the Area of the Undertaking.

Ontario Land Cover Database

The Ontario Land Cover Database is the first land cover classification in Canada to be completed for an entire province entirely from satellite remote sensing data. The Ontario Land Cover data was derived from digital, multispectral LANDSAT 7 Thematic Mapper data

recorded on a range of dates between 2000 and 2002. The total provincial area summarized using this coverage is shown in Appendix 2.

Forest Resources Inventory

Using aerial photographs and field verification, the Forest Resources Inventory (FRI) is created by classifying forest stands and other areas into broad physical categories including productive forest, non-productive forest, non-forested land, and bodies of water.

Each component is further classified by its ownership and land use. The FRI provides descriptive information in the form of interpreted aerial photographs, forest stand maps, and computerized data, used for management planning and to monitor the health of the forest.

During the period of this report, a new inventory was required for each management unit approximately every 25 years. Updates were required at the start of each new FMP to reflect all changes to the forest (i.e., depletions and accruals) that occurred prior to the commencement of the new FMP. Depletions include harvest and natural reductions, such as those caused by wildfire, insects, disease, and severe weather events. Accruals include the results of forest renewal and tending activities for both assisted and naturally regenerated areas.

FRI updates are produced only within the AOU for use in FMPs. The average age of the FRI within the AOU is approximately seven years. Inventories of southern Ontario and the extreme north are more than 20 years old. A large area of the extreme north is not inventoried.

Forest Management Planning

Environmental Assessment Act coverage for forest management on Crown Lands in Ontario within the Area of the Undertaking is covered by Declaration Order MNR-71 (as amended by MNR-71/2), approved in June 2003. The conditions of the Declaration Order define broad direction for forest management planning, and complement the forest management planning principles of the *Crown Forest Sustainability Act*, 1994. Detailed technical direction for forest management is provided through the *Forest Management Planning Manual for Ontario's Crown Forests 2004* (FMPM) regulated under the CFSA. The FMPM 2004 is consistent with the Declaration Order MNR-71 conditions, and came into effect September 2004.

In 2006/07 planning teams continued work on FMPs scheduled for renewal in 2007 and 2008 (which will be the first plans prepared consistent with the FMPM 2004), and initiated work on 2009 plans.

Forest Management Planning Training

Condition 46 of Declaration Order MNR-71 requires MNR to ensure that comprehensive professional and technical training programs are maintained, so that the knowledge of those involved in the planning and implementation of forest management activities is continually upgraded. A total of 12 training sessions were delivered in 2006/07 to the 2008 and 2009 planning teams, including: seven FMP courses, the forest management planning annual update workshop, project management for forest management planning, and three strategic forest management modelling sessions (data preparation and advanced analysis),. Training sessions were delivered in Northeastern, Northwestern and Southern Ontario locations, as well as by remote delivery using internet and conference calls to minimize travel for planning teams.

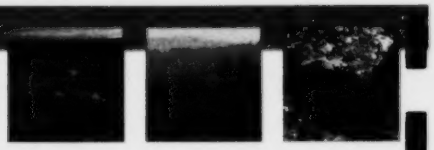
Forest Information Manual

The *Forest Information Manual* describes the requirements for exchanging information about the management of Crown forests between the forest industry and the MNR. A revised version of the manual, the Forest Information Manual 2007 was prepared in 2006/07 to align information requirements with the FMPM. A project team of MNR staff, working very closely with forest industry personnel reviewed all existing and proposed information requirements to ensure that an efficient and streamlined approach is taken in all data exchanges. The MNR and industry continue to promote and rely upon digital, geospatial information exchanges to support annual reporting.

A *Forest Information Manual Annual Report Technical Specifications* was published in June 2007 to assist with 2006/07 management unit annual reporting.

Forest Information Portal

The Forest Information Portal continues be used to transfer and exchange management unit annual reports and information. In particular, it is used to distribute MNR's input to annual reports. This includes the results of an automated query against corporate databases to provide volume information, compliance inspection activity information and natural



disturbance data. The natural disturbance data (largely fire and insect depletions) is now provided in April and the volume information in September.

A new and important module of the Forest Information Portal was in operation for this reporting period – the automated AR data validation module. This module screens the incoming annual report data, checking the format and content against the Annual Report Technical Specification. A preliminary set of criteria determine acceptability (acceptance/rejection), then a secondary set is used to produce a report of anomalies or potential deficiencies.

Forest Management Units and Plans

The forest management planning system is based on, or applied to, a planning area known as a forest management unit. The MNR has continued efforts to rationalize and consolidate forest management units to realize efficiencies in forest planning and FMP implementation. As of April 1, 2006, the AOU was divided into 46 management units. One additional management unit (for a total of 47) is comprised of Crown land in southern Ontario outside the AOU. This is a reduction of one management unit compared to the previous year (i.e. April 1, 2005). Further reductions in the number of management units are under review and expected in the future. Appendix 1 provides a map and list of forest management units as of April 1, 2006. During 2006/07, management units ranged in size from 210,000 hectares to 1,861,000 hectares of managed Crown land, with an average unit size of 725,000 hectares.

There were 15 forest management plans approved for implementation in 2006, while work was initiated or continued on an additional 13 plans. Appendix 3 includes a listing of the 2006 FMPs, as well as the complete plan renewal schedule for all management units.

Resource Stewardship Agreements

Resource Stewardship Agreements (RSAs) are a means for Sustainable Forest Licence holders and licensed tourism establishments, two key forest users, to collaborate on the development of planning solutions proposed during the forest management planning process. The *Tourism and Forestry Industry Memorandum of Understanding* (2001) provides direction for the development of these RSAs. This memorandum of understanding recognizes the value of these two industries working cooperatively to understand each other's needs, and of working together in the development of planning proposals. While this co-operative approach to planning has been used in some parts of Ontario for the past 10 years, the memorandum of understanding commits these industries and government to support the use of the process

everywhere in the Crown forest. Use of the RSA process is intended to provide greater security for these two industries, and help them avoid costly and time-consuming forest management conflicts.

Background/Sources

Documents available to provide background about forest management in Ontario include:

- the *Declaration Order (MNR-71) Regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario* (June 2003) which amends and extends the Timber Class EA Approval. It outlines conditions for forest management on Crown land in Ontario. MNR-71 was later amended by Order MNR-71/2, with these later amendments coming into effect on March 21, 2007;
- the *Crown Forest Sustainability Act*, enabling legislation which provides for the regulation of forest planning, public involvement, information management, operations, licensing, trust funds for reforestation, processing facilities, remedies and enforcement;
- the *Policy Framework for Sustainable Forests*, which lays out the principles for managing forests sustainably in Ontario;
- MNR's *Statement of Environmental Values*, which sets out the environmental principles that govern the MNR's management of Ontario's natural resources;
- the *Forest Management Planning Manual for Ontario's Crown Forests* (June 2004), which provides direction for all aspects of forest management planning for management units in the Area of the Undertaking;
- the *Forest Operations and Silviculture Manual*, which is a compendium of guidance and direction for the conduct of operations authorized by approved FMPs;
- the *Scaling Manual*, which provides standard instructions for determining the quantity, quality and movement of Crown timber harvested in Ontario;
- the *Forest Information Manual*, a technical document that describes the requirements and standards for information needed to support forest management planning on Crown lands in Ontario;
- the *Forest Resource Assessment Policy*, which provides provincial direction for the assessment of Ontario's Crown forest resources. This policy supports the provisions in the CFSA for determining forest sustainability and managing Ontario's Crown forests in a sustainable manner.
- the *Forest Resources of Ontario 2006*, a snapshot of statistics on the state of Ontario's forests;

- the *State of the Forest Report, 2006*, the second such report on the condition of Ontario's forest resources, for the period 1999-2004 (as required by condition 33 of the Forest Management Class EA Approval, the CFSA, and the Forest Resource Assessment Policy); and
- Ontario's forest management guides, which include technical considerations, standards and guidance used during the preparation and delivery of FMPs. They may also include suggestions on the best ways of carrying out forest management operations, sometimes referred to as "best management practices".

Further information on these sources, and electronic versions of many of these documents, are available from the Forests portion of the MNR's website:

http://www.mnr.gov.on.ca/en/Business/Forests/Publication/index.html

Ontario statutes and regulations referred to in the report are available online at:

http://www.e-laws.gov.on.ca/

Private Land Initiatives

In accordance with applicable laws, the ultimate decision of how private land in Ontario will be managed is made by the landowner. The MNR's private woodland initiatives encourage landowners to move towards the standard set by the definition of "good forestry practices" in the Forestry Act:

> *"…the proper implementation of harvest, renewal and maintenance activities known to be appropriate for the forest and environmental conditions under which they are being applied and that minimize detriments to forest values including significant ecosystems, important fish and wildlife habitat, soil and water quality and quantity, forest productivity and health and the aesthetics and recreational opportunities of the landscape…"*

MNR encourages stewardship of this resource and provides a framework for sustainability by:

- coordinating the programs and efforts of the many agencies and groups interested in promoting stewardship;
- providing education and skill training opportunities for landowners and the forest industry to become more knowledgeable about stewardship;
- providing effective policies as incentive to foster stewardship of woodlands, and
- providing legislative support.

The framework consists of both legislative and incentive components.

The Legislative Component

At the provincial level, the legislative component includes:

- the *Planning Act* and the *Provincial Policy Statement*;
- municipal tree bylaws passed under the *Municipal Act*, and
- other legislation targeted to protect landscape features and promote good forest management

The provisions of the *Planning Act* and *Municipal Act* provide a basis for municipalities to protect woodlands and their associated values. However, they are discretionary and not

mandatory in nature. Monitoring developments in legislation and in the application of the legislation by municipalities may provide insight into how municipalities are addressing local concerns and pressures.

Significant Woodlands in the Provincial Policy Statement

The *Provincial Policy Statement* (1997), which includes provisions for significant woodlands, was issued under the authority of Section 3 of the *Planning Act*. In accordance with Section 3 of the *Planning Act*, the policies of the *Provincial Policy Statement* must be reviewed every five years. The purpose of the review is to determine the scope and nature of changes which are required to effectively protect provincial interests in land use planning. As a result of the most recent review, Section 3 of the *Planning Act* was amended to require that all decisions affecting land-use planning matters "shall be consistent with" the policy statements issued under the *Planning Act* (this was strengthened from the previous wording "have regard for"). This amendment came into force on March 1, 2005 and enhances provisions for significant woodlands.

The *Provincial Policy Statement* indicates that development and site alteration may be permitted in significant woodlands south and east of the Canadian Shield, if it has been demonstrated there will be no negative impact on the natural features or ecological functions for which the area is identified. The MNR may provide expertise and technical support to municipalities in efforts to determine the significance of woodlands in their planning and development decision making. Technical expertise is also provided to the Ministry of Municipal Affairs and Housing for its roles under the *Planning Act*.

Forest Conservation and Tree Bylaws

Ontario municipalities have traditionally had the authority to regulate the harvest of trees on private land through various statutes. Counties, regional municipalities and a few specific townships in southern Ontario were first able to pass tree bylaws through the *Trees Conservation Act* in 1946, then the *Trees Act* in 1950, and finally the *Forestry Act* (1998 amendments). Under the *Municipal Act* in 1994, all local municipalities with a population of greater than 10,000 could regulate tree cutting. Due to the population limit, bylaw provisions were not accessible to all municipalities.

To simplify the process and authority for tree bylaws, provisions were consolidated into the new *Municipal Act* (2001) which took effect on January 1, 2003. Upper-tier municipalities (counties and regional municipalities), lower tier municipalities (townships) and single tier

municipalities now have equal access to tree bylaw powers. Provisions for tree bylaws have been removed from the *Forestry Act*; however by-laws enacted under the *Forestry Act* remain valid until they are repealed. Municipalities shall have regard to good forestry practices as defined in the *Forestry Act*. The *Municipal Act* provides enhancements such as the option to charge violations per tree, require permits to cut and to impose conditions on the cutting, including how trees are cut and qualifications of persons authorized to cut, allow by-law officers to order cutting to stop, as well as providing increased fines of $10,000, or $1,000 per tree. Some municipalities now use tickets for minor violations, simplifying the enforcement of tree bylaws. Table 1a lists the number of tree-cutting bylaws in Ontario by year and the Act under which they were prepared. It shows a trend toward upper tier by-laws being updated from the *Forestry Act* to the *Municipal Act* and increase in lower tier by-laws. To learn more about tree bylaws, visit http://www.ontariowoodlot.com.

Number of municipalities with tree cutting bylaws in Ontario

Legislation		2002	2003	2004	2005	2006
Forestry Act		24	19	19	15	8
Municipal Act	Upper Tier	16	22	6	10	17
	Lower Tier			21	22	23
Total number of Tree Cutting Bylaws		**40**	**41**	**46**	**47**	**48**

Table 1a - Number of municipalities with tree cutting bylaws in Ontario

Targeted Legislation

The provincial interest in privately owned forests is also specifically expressed for the Niagara Escarpment and Oak Ridges Moraine. Through enabling legislation, enhanced protection is provided under the *Niagara Escarpment Planning and Development Act* and the *Oak Ridges Conservation Act* and associated plans.

Additional protection was provided to forest land in an area along the western edge of Lake Ontario from Niagara to Toronto in 2005. The *Greenbelt Act*, 2005 enables the creation of a Greenbelt Plan to protect about 1.8 million acres of environmentally sensitive and agricultural land in the Golden Horseshoe from urban development and sprawl. It includes and builds on about 800,000 acres of land within the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan. The legislation authorizes the government to designate a Greenbelt Area and establish a Greenbelt Plan. The act sets out the main elements and objectives for the Greenbelt, which are addressed in the plan. The act also requires planning decisions to conform to the Greenbelt Plan.

The MNR promotes natural area protection through conservation easements under the *Conservation Land Act*. Easements may be entered into with a qualified organization and landowners can provide limits on land use. Since the easement is registered on title, it binds all owners of the land over the easement's term. The land may be devalued in dollar terms by the easement, which can lower property taxes.

Ontario's regulatory framework also includes the *Professional Foresters Act*. The principal objective of this act is to regulate the practice of professional forestry and to govern its members in accordance with the act. While the *Professional Foresters Act* does not restrict a landowner's ability to cut trees on their property, it does affect practitioners of forestry whom they may hire for assistance.

The Incentive Component

To achieve healthy ecosystems, incentives are offered to promote the level of stewardship achieved inside the legislative framework. At the provincial level, the incentive component includes: the Managed Forest Tax Incentive Program (MFTIP) and Ontario Stewardship program. Other programs and opportunities complement this framework and are accessible through conservation authorities, environmentally based non-government associations and municipalities.

Managed Forest Tax Incentive Program

The MFTIP was introduced for the 1998 tax year to bring greater fairness to the property tax system by valuing forest land according to its current use. The program is designed to increase landowner awareness about forest stewardship. Participants in the program range from Essex County landowners looking after the fragmented natural landscape, to owners of forested shoreland in Muskoka, to large forest companies in northern Ontario contributing to the northern economy.

Landowners who apply and qualify for the program have their property classified under the managed forests property class described in Ontario Regulation 282/98 of the *Assessment Act*. The eligible property is then taxed at 25 per cent of the residential tax rate established by the municipality. The minimum property size for the program is 4 hectares (9.88 acres). Landowners participating in the program are required to prepare a Managed Forest Plan for their property and have it approved by an individual designated by MNR as a Managed Forest Plan Approver.

The area covered by approved Managed Forest Plans indicates the program's success and, to some degree, the amount of private forest being sustainably managed. The goal is to ensure there is no long-term decline in the forest area included in the program. In 2006, there were 10,701 properties and 724,490 hectares of land receiving benefits under the MFTIP (Table 1b).

Private forests managed under the Managed Forest Tax Incentive Program

MNR Region	Forest Area Under Management (hectares)				
	2002	2003	2004	2005	2006
Northeast Region	137,063	142,254	143,201	141,589	135,738
Northwest Region	180,430	181,398	182,045	181,792	180,660
Southern Region	391,364	396,964	399,641	406,873	408,092
Total	**708,857**	**720,616**	**724,887**	**730,254**	**724,490**

MNR Region	Number of Properties				
	2002	2003	2004	2005	2006
Northeast Region	935	962	983	992	916
Northwest Region	118	121	135	134	126
Southern Region	8,846	9,302	9,445	9,623	9,659
Total	**9,899**	**10,385**	**10,563**	**10,749**	**10,701**

Reporting date – July 31st of the year specified

Table 1b - Private forests managed under the Managed Forest Tax Incentive Program, by MNR region

When reviewing MFTIP statistics, it must be acknowledged that in some parts of the province where property taxes are relatively low, the tax savings from the MFTIP are not as great as in areas where property taxes are higher. Also in agricultural portions of the province, many woodlands receive preferential property tax treatment through the Farm Tax Policy. In areas such as these, landowners may be practicing good stewardship but not entered into the MFTIP.

Managed Forest Tax Incentive Program Enhancements

In 2005, the Minister of Natural Resources announced improvements to the Managed Forest Tax Incentive Program. The improvements include changes to the assessment of eligible properties and changes to the administration of the program.

Legislation permitting new assessment methodologies for managed forest properties was introduced in the spring 2005 Budget Bill. The new assessment approach assesses woodlots in a manner similar to the method used for farm lands, which is based on land productivity rates. This is referred to as the farm-forest proxy, and better allows MFTIP objectives to be realized.

The administrative changes to the MFTIP include increasing the term of MFTIP plans from 5 to 10 years, and creating a new category of open area that recognizes the diversity of Ontario's forests. Current program participants have the opportunity to extend their 5-year plan period to the new 10-year plan period by submitting an application package

Private Land Tree Planting Initiatives

Large-scale successful tree planting on private land is dependant on the co-ordination of many local delivery agencies and the private reforestation sector to ensure the use of appropriate species, stock and operations. The Trees Ontario Foundation (TOF) is the only organization with the forestry expertise and networking capacity willing to carry out this mandate. MNR recognized this mandate with a grant of $2,000,000 for 2006/07 under the government's Natural Spaces Program. This funding helped TOF develop an infrastructure to attract interested landowners, forecast seed and stock needs, inventory and build reforestation expertise among the delivery partners, and fundraise in the private sector to increase tree planting efforts. In 2006/07, using a combination of MNR funds and other fundraising efforts, TOF developed operational programs to facilitate tree planting projects on private and community lands in Ontario. In 2006/07 TOF planted 170,000 under these programs. TOF is developing strategies and mechanisms to further tree planting efforts on private lands in Ontario.

TOF is assisted in this undertaking by the OMNR's Ontario Tree Seed Plant, Ontario Stewardship Coordinators and Councils, and by OMNR's support of the Forest Gene Conservation Association. Many Ontario Stewardship Councils work as local program delivery agents, securing seedlings from private growers on behalf of local landowners. The

Managed Forest Tax Incentive Program Enhancements

In 2005, the Minister of Natural Resources announced improvements to the Managed Forest Tax Incentive Program. The improvements include changes to the assessment of eligible properties and changes to the administration of the program.

Legislation permitting new assessment methodologies for managed forest properties was introduced in the spring 2005 Budget Bill. The new assessment approach assesses woodlots in a manner similar to the method used for farm lands, which is based on land productivity rates. This is referred to as the farm-forest proxy, and better allows MFTIP objectives to be realized.

The administrative changes to the MFTIP include increasing the term of MFTIP plans from 5 to 10 years, and creating a new category of open area that recognizes the diversity of Ontario's forests. Current program participants have the opportunity to extend their 5-year plan period to the new 10-year plan period by submitting an application package

Private Land Tree Planting Initiatives

Large-scale successful tree planting on private land is dependant on the co-ordination of many local delivery agencies and the private reforestation sector to ensure the use of appropriate species, stock and operations. The Trees Ontario Foundation (TOF) is the only organization with the forestry expertise and networking capacity willing to carry out this mandate. MNR recognized this mandate with a grant of $2,000,000 for 2006/07 under the government's Natural Spaces Program. This funding helped TOF develop an infrastructure to attract interested landowners, forecast seed and stock needs, inventory and build reforestation expertise among the delivery partners, and fundraise in the private sector to increase tree planting efforts. In 2006/07, using a combination of MNR funds and other fundraising efforts, TOF developed operational programs to facilitate tree planting projects on private and community lands in Ontario. In 2006/07 TOF planted 170,000 under these programs. TOF is developing strategies and mechanisms to further tree planting efforts on private lands in Ontario.

TOF is assisted in this undertaking by the OMNR's Ontario Tree Seed Plant, Ontario Stewardship Coordinators and Councils, and by OMNR's support of the Forest Gene Conservation Association. Many Ontario Stewardship Councils work as local program delivery agents, securing seedlings from private growers on behalf of local landowners. The

Tree Seed Plant coordinates seed collection efforts, and processes, banks and sells seed in support of the private growers. The Forest Gene Conservation Authority works closely with TOF and the Ontario Tree Seed Plant to promote native species, source-identified seed and to train seed collectors through their Ontario's Natural Selections seed source certification program. The Forest Gene Conservation Authority is also supported by MNR District staff in the management of white pine seed orchards, to supply high quality seed for private land tree planting efforts.

Ontario Stewardship

The MNR's Ontario Stewardship program is a community-based initiative that brings together landowners, associations, resource agencies and individuals who share an interest in responsible land care and sustainable resource use. The program advocates stewardship as a tool for land management.

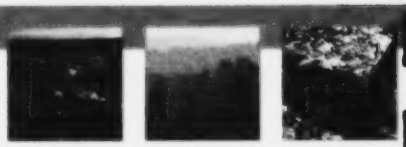
Participants in the program are encouraged to work together to develop an ecosystem-based approach for improving local stewardship and to create collaborative resource management tools. Developed in 1995, the ongoing success and growth of the Ontario Stewardship program is largely due to its strong foundation of community partnerships and volunteerism.

The Ontario Stewardship network currently consists of 42 community-based stewardship councils located throughout the province with further growth and expansion into northern Ontario anticipated. Councils are formed geographically by community and population. Every council embraces forestry interests and may include members of the Ontario Woodlot Association or the Ontario Forestry Associations, maple syrup producers, forestry consultants, loggers and woodlot owners.

Reporting Criteria	Measure
Council summary	
Number of stewardship councils	42
Number of council members (12/council)	504
MNR contribution ($10,000/council)	$420,000
Project summary (primary program area)	
Number of fish and wildlife projects	133
Number of forestry projects	217
Number of "other" projects*	255
Total number of projects	605
Partner contributions to:	
Number of volunteers	3,178
Number of volunteer hours	185,512
In-kind partner effort ($)	$6,543,203
Direct partner contributions ($)	$9,699,240
Total partner contributions (direct/indirect $)	$16,242,444

**includes projects related to Natural Heritage, Biodiversity and Species at Risk*

Table 1c - Summary of Ontario Stewardship accomplishments in 2006/07



Private forest interests will be further realized as Ontario Stewardship's expansion efforts into northern Ontario's continue. For more information on Ontario Stewardship, please visit http://www.ontariostewardship.org.

Stewardship Council Focus: The Haliburton Highlands Stewardship Council

The Haliburton Highlands Stewardship Council covers an area of over 500,000 hectares, of which 90% is shaded by forest canopy. Major waterways include the Trent River System, the Georgian Bay Watershed and the Gull River. Sparsely settled, the communities of Haliburton and Minden form the largest population centres of the Highlands. Since the early settlement period, the forest industry has been a driving economic force in this area. In the last century, the beautiful backdrop of the Highlands has provided the perfect setting for the area's growing tourism sector.

Woodlot Best Management Practices

The Haliburton Highlands Stewardship Council, in partnership with the Parry Sound Muskoka Stewardship Council and the County of Haliburton, created a brochure to outline the Best Management Practices of Woodlots for private woodlot owners. This brochure, along with the County of Haliburton's Forest Conservation By-Law brochure, was mailed to all property owners in Haliburton County with 25 acres of land or more. The mail-out reached more than 2,000 landowners, and was intended to bring awareness of the sustainable woodlot management options that are available to landowners.

Stewardship Series

Informative, day-long workshops for landowners, cottagers, and land stewards were offered in partnership by the Haliburton Highlands Stewardship Council and the Parry Sound Muskoka Stewardship Network. In their 10th year, these workshops are intended to provide participants with a better understanding of forest ecosystems, and the principles and practices of land and forest stewardship.

Private forest interests will be further realized as Ontario Stewardship's expansion efforts into northern Ontario's continue. For more information on Ontario Stewardship, please visit http://www.ontariostewardship.org.

Stewardship Council Focus: The Haliburton Highlands Stewardship Council

The Haliburton Highlands Stewardship Council covers an area of over 500,000 hectares, of which 90% is shaded by forest canopy. Major waterways include the Trent River System, the Georgian Bay Watershed and the Gull River. Sparsely settled, the communities of Haliburton and Minden form the largest population centres of the Highlands. Since the early settlement period, the forest industry has been a driving economic force in this area. In the last century, the beautiful backdrop of the Highlands has provided the perfect setting for the area's growing tourism sector.

Woodlot Best Management Practices

The Haliburton Highlands Stewardship Council, in partnership with the Parry Sound Muskoka Stewardship Council and the County of Haliburton, created a brochure to outline the Best Management Practices of Woodlots for private woodlot owners. This brochure, along with the County of Haliburton's Forest Conservation By-Law brochure, was mailed to all property owners in Haliburton County with 25 acres of land or more. The mail-out reached more than 2,000 landowners, and was intended to bring awareness of the sustainable woodlot management options that are available to landowners.

Stewardship Series

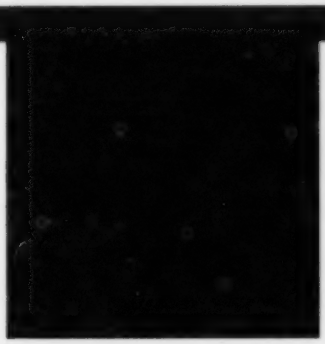
Informative, day-long workshops for landowners, cottagers, and land stewards were offered in partnership by the Haliburton Highlands Stewardship Council and the Parry Sound Muskoka Stewardship Network. In their 10th year, these workshops are intended to provide participants with a better understanding of forest ecosystems, and the principles and practices of land and forest stewardship.

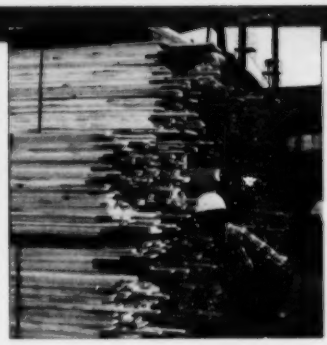
Other Private Land Initiatives

The MNR supports other initiatives that provide assistance to Ontario's private land owners including:

- An Extension Note series which provides information in an easy-to-understand format on topics related to land, water, wildlife, trees and property management. The notes are on the Ontario Forests website (http://www.mnr.gov.on.ca/en/Business/Forests). Other publications of a more technical nature are also available to landowners.
- The Eastern Habitat Joint Venture Program, where the MNR and partners actively conserve important wetland and upland habitats for the benefit of waterfowl, other wildlife and the public. Through this program, non-government partners offer technical and financial assistance to landowners for conservation projects.
- The Conservation Land Tax Incentive Program offers a reduction in property taxes to landowners agreeing to protect a natural heritage feature identified by the MNR on their property (e.g., provincially significant wetlands). During 2006 the program had approximately 15,700 properties participating, thereby conserving some of Ontario's most significant natural heritage features.

Forest Products Industry





Ontario's forests supply the basic resources for a variety of industries, including lumber, structural board, pulp, paper, and newsprint. In addition, facilities that support forest activities and numerous service industries also depend on Crown forests.

The logging, wood products and paper manufacturing sectors, plus other related industries, comprise the forest products industry. The logging industry includes both large and small contractors, as well as large, mill-owned operations. Contractors may work independently or directly for company-owned mills.

The wood product manufacturing industries include primary manufacturing businesses such as sawmills, veneer mills, and structural board plants producing both construction materials and specialty wood products from raw wood fibre (trees). The capital investments in these facilities range from a few thousand to over $250 million dollars. The value-added wood product industry further re-manufactures primary wood products such as lumber into various higher value wood products such as millwork (doors and windows) cabinetry, architectural woodwork, pre-fabricated housing, etc. When discussing the revenue generated from the sale of products manufactured by the wood industries we include sales from primary manufacturers as well as the value-added wood product industries as well. In Ontario approximately 56% of forest product revenue from wood product manufacturing is generated from the sale of value-added wood products.

The paper industries also include primary and secondary or value-added manufacturing. Primary pulp mills produce pulp for sale to paper manufacturers in Ontario and throughout the world. Primary paper manufacturers produce products such as newsprint and various types of papers such as uncoated, coated, supercalender and construction paper.

Primary mills also produce linerboard and corrugated medium, which when combined produces cardboard. Primary mills use one or a combination of, wood chips, logs and recycled paper as their primary furnish. A new pulp mill can cost close to $1 billion. Secondary paper mills purchase either pulp or paper and added further value by turning out products such as book paper, labels, wrapping paper, various sanitary products, etc. In Ontario just over 50% of the revenue generated by the paper industries comes from the value-added secondary manufacturers. Revenue from paper industries mills represents almost 55 percent of the value of all forest product sales.

Figure 2a - Volume of forest products produced at Ontario mills (1)

Note: Data for 2006 were not complete at the time of Annual Report submission

Note: Data prior to 2006 corrected for a unit of measure conversion error in OSB

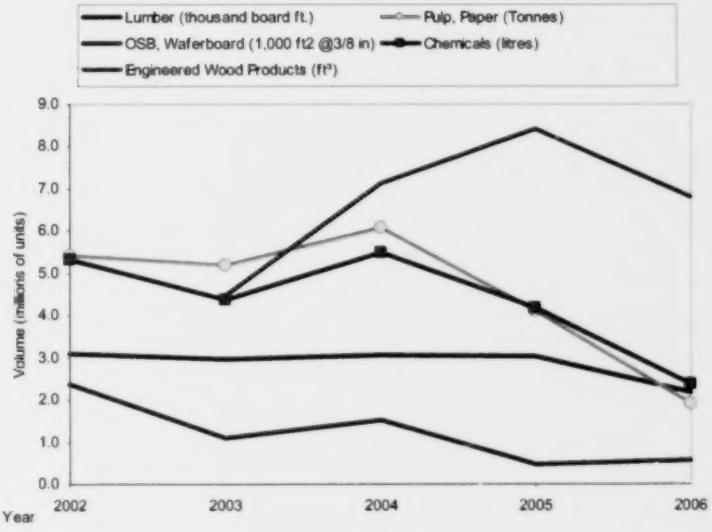
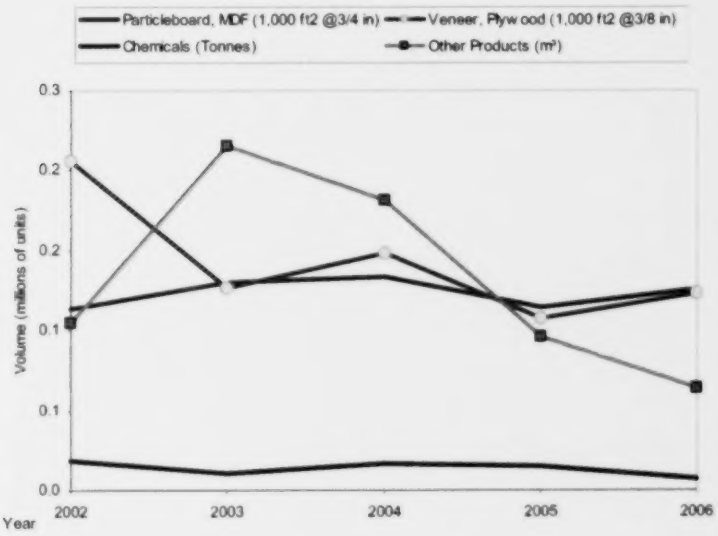
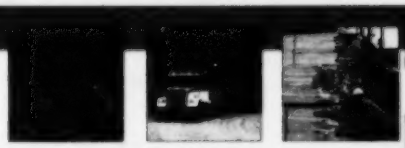


Figure 2b - Volume of forest products produced at Ontario mills (2)

Note: Data for 2006 were not complete at the time of Annual Report submission

Note: Data prior to 2006 corrected for a unit of measure conversion error in Particleboard





The value of sales from Ontario's forest product sector has declined recently during the five year period ending in 2006 (Table 2a). The decline is due to a combination of factors affecting the industry's competitiveness. The most negative influence on Canada's competitiveness is the increase in the value of the Canadian dollar which increases the cost base in U.S. dollar terms for Canadian companies. The Canadian dollar continued to appreciate from its lows in 2001 and 2002 when the Canadian dollar averaged just 64.2 cents U.S. The Canadian dollar averaged 88 cents U.S. in 2006, up from 82.5 cents U.S. in 2005. Adding to this increasing cost base are increases in electricity and fuel costs. These extra costs, coupled with an increased level of inexpensive wood-based product imports (mostly from China), are taking their toll on the Canadian forest products industry. The forest industry continued to experience a large number of layoffs and mill closures during 2006/07, as summarized in Table 2b.

Year	Value of Shipments (million $)
2002[1]	$19,315
2003	$18,920
2004	$19,501
2005	$18,802
2006	$17,066

Table 2a - Ontario forest products sector sales[1]

Source: Statistics Canada 2006

[1] 2002 was not directly comparable to subsequent years as Statistics Canada made a small change in the collection methodology

Value added is defined as the amount the industry actually contributes to the Ontario gross provincial product. Measuring and reporting value added contributions of the forest industry eliminates the double counting effect of sales between the forest products manufacturers and their suppliers. Value added forest industry contributions to the gross provincial product continued to fall in 2006/07, to $6.4 billion down from $8.1 billion in 2002. Table 2c shows the value added in 2006/07 for the logging industry and both major forest sector industries - the wood product manufacturing industries, and the paper manufacturing industries. Total employment within the forest industry in 2006 was estimated at 219,000. Included in this figure are direct, indirect, and induced jobs. Table 2c shows direct employment only.

Total Cumulative Layoffs & New Jobs at Ontario Forest Industry Mills By Year

Sector	2003	2004	2005	2006	2007	Total
Sawmill - Permanent	-317	-151	-325	-170	-41	-1,004
Sawmill - Temporary	-324	-61	-843	-3,410	-1,278	-5,916
Sawmill - Indefinite	-480	0	-100	-766	-1,183	-2,529
Sawmill - Job Created	46	0	187	32	5	270
Pulp & Paper - Permanent	-587	-428	-1,080	-3,038	-925	-6,058
Pulp & Paper - Temporary	0	-100	-1,740	-1,280	-1,030	-4,150
Pulp & Paper - Indefinite	-48	-65	0	-803	-205	-1,121
Pulp & Paper - Jobs Created	0	0	0	440	311	751
Board - Permanent	-260	-106	0	0	-280	-646
Board - Temporary	-111	0	-300	0	-115	-526
Board - Indefinite	0	-41	-249	-618	-208	-1,116
Board - Jobs Created	0	140	18	14	12	184
Value-Added - Permanent	0	0	0	-22	-41	-63
Value-Added - Temporary	0	0	0	0	-148	-148
Value-Added - Indefinite	0	0	0	0	0	0
Value-Added - Jobs Created	0	0	6	0	53	59
Total Layoffs	**-2,127**	**-952**	**-4,637**	**-10,107**	**-5,454**	**-23,277**
Total Permanent Layoffs	-1,164	-685	-1,405	-3,230	-1,287	-7,771
Total Indefinite Layoffs	-528	-106	-349	-2,187	-1,596	-4,766
Total Temporary Layoffs	-435	-161	-2,883	-4,690	-2,571	-10,740
Total New Jobs Created	46	140	211	486	381	1,264

Note: Yearly summary numbers are best estimates from the information provided. Also note that temporary layoffs represent total cumulative temporary layoffs which occurred that particular year, regardless of length (ie. days, weeks, months).

Table 2b - Total cumulative layoffs & new jobs at Ontario forest industry mills by year

Sector	Number of Establishments		Number of Employees		Manufactured Value Added	
	Number	% of Canadian Total	Number	% of Canadian Total	Value Added (million $)	% of Canadian Total
Logging[1]	1,657	17%	6,698	14%	$651	12%
Wood Product Manufacturing[2]	1,595	27%	24,979	20%	$2,223	19%
Paper Manufacturing[3]	470	46%	26,660	36%	$3,515	30%
Total	**3,722**	**31%**	**58,337**	**24%**	**$6,389**	**21%**

Source: Statistics Canada

Number of establishments and Value Added - Annual Survey of Manufacturers

Number of employees - Labour Force Survey

[1] Logging sector estimates are based on 2001 data, as Statistics Canada no longer reports this information

[2] Includes sawmills, wood preservation, veneer, plywood and engineered wood products manufacturing.

[3] Includes pulp, paper, paperboard and converted paper product manufacturing.

Table 2c - Distribution of manufacturing activities by sector and direct employment within each sector in 2006/07

As well as being a major employer, the forest industry annually invests in capital improvements and mill expansions. The tough operating environment has impacted the industries ability to re-invest their operations. The forest industry had capital and repair expenditures of $1.11 billion in 2006, an almost 10% decrease from expenditures of $1.22 billion in 2005. Re-investment in plant and equipment has decreased annually since 2000 when expenditures were over $1.5 billion.

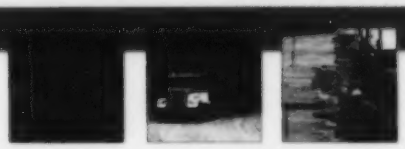
Figure 2c - Forest industry mill yard in northern Ontario

Forest Sector Employment

Based on the 2006 Statistics Canada census, 28 Ontario communities, most located in Northern Ontario, had at least 20 percent of their labour force employed in the forest industry. Appendix 4 lists these Ontario communities, shows the total labour force for each community, and identifies the percentage that worked in the forest sector.

Harvest Licence System

Ontario's Crown forests are only harvested by companies or individuals that hold one of two types of licences - Sustainable Forest Licences (SFLs) and Forest Resource Licences (FRLs). The total number of both licence types issued in the year 2006/07 is shown in Table 2d.



Licence Type	Overlapping	Not Overlapping	Total
Sustainable Forest Licence	0	45	45
FRL less than 300 hectares	3,253	112	3,365
FRL greater than 300 hectares	522	41	563
Salvage	4	0	4
Total	**3,779**	**198**	**3,977**

Table 2d - Number of active licences in 2006/07 by licence type

Among other requirements, a SFL requires the licensee to prepare forest management plans following the direction of the *Forest Management Planning Manual for Ontario's Crown Forests*. The licensee is responsible for implementing forest management plans by carrying out access, harvest, renewal, and maintenance activities. The SFL holder must follow the rules and guidelines set by the MNR to ensure sustainable forest management. FRL holders follow forest management plans approved by the MNR and must operate to ensure the long-term health of the forest. For further details on Ontario's forest management planning system, see Chapter 1.

Ontario's Forest Industry Facility Statistics

Ontario's Forest Industry Facility Statistics is produced annually and provides information about forest resource processing facilities (mills) in Ontario. Facilities provide data to the Ministry of Natural Resources annually (in accordance with the Crown Forest Sustainability Act) as a requirement of the licensing system. MNR also collects and maintains data on wood volume harvested through the Timber Resource Evaluation System (TREES). These data are combined to give a reflection of forest industry activity in Ontario. The information collected represents the primary forest resource processing sector.

A copy of the most recent edition of Ontario's Forest Industry Facility Statistics is available at the MNR website: http://www.mnr.gov.on.ca/MNR/.

Licence Type	Overlapping	Not Overlapping	Total
Sustainable Forest Licence	0	45	45
FRL less than 300 hectares	3,253	112	3,365
FRL greater than 300 hectares	522	41	563
Salvage	4	0	4
Total	**3,779**	**198**	**3,977**

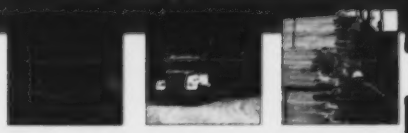
Table 2d - Number of active licences in 2006/07 by licence type

Among other requirements, a SFL requires the licensee to prepare forest management plans following the direction of the *Forest Management Planning Manual for Ontario's Crown Forests*. The licensee is responsible for implementing forest management plans by carrying out access, harvest, renewal, and maintenance activities. The SFL holder must follow the rules and guidelines set by the MNR to ensure sustainable forest management. FRL holders follow forest management plans approved by the MNR and must operate to ensure the long-term health of the forest. For further details on Ontario's forest management planning system, see Chapter 1.

Ontario's Forest Industry Facility Statistics

Ontario's Forest Industry Facility Statistics is produced annually and provides information about forest resource processing facilities (mills) in Ontario. Facilities provide data to the Ministry of Natural Resources annually (in accordance with the Crown Forest Sustainability Act) as a requirement of the licensing system. MNR also collects and maintains data on wood volume harvested through the Timber Resource Evaluation System (TREES). These data are combined to give a reflection of forest industry activity in Ontario. The information collected represents the primary forest resource processing sector.

A copy of the most recent edition of Ontario's Forest Industry Facility Statistics is available at the MNR website: http://www.mnr.gov.on.ca/MNR/.



Ontario's Stumpage System

In 2006/07 the Government of Ontario received direct payments from the forest industry in the form of stumpage fees, and indirect revenue from taxes. Forest companies pay a stumpage fee to the Crown for every cubic metre of timber harvested. A market-based pricing system is used by the MNR to calculate the stumpage fees that companies and individuals pay for harvesting timber from Crown land. In times of strong market prices for forest products, the stumpage system triggers higher fees. In poor markets, harvesters pay lower fees. The Crown's stumpage fees have four components:

- A minimum charge per cubic metre of harvested timber, regardless of the species, goes to the Consolidated Revenue Fund of the province. This charge is adjusted annually. Table 2e shows the changes in the minimum charge since 2002/03.
- A forest renewal levy to provide dedicated funding for forest renewal. This charge varies depending upon the tree species and its anticipated renewal cost. Forest renewal charges are held in either a Forest Renewal Trust Fund or a Forest Renewal Special Purpose Account, and can only be used for regenerating and maintaining the forest on the specific management unit from which the monies were generated.
- A residual value charge, paid to the province's Consolidated Revenue Fund. The calculation of this charge varies from zero in times of low forest product prices, to about $23 per cubic metre when product prices are high, depending on species and product sector.
- A Forestry Futures Trust charge is also applied; this charge is a $0.48 per cubic metre of timber harvested. The Forestry Futures Trust is managed by the Forestry Futures Trust Committee, an independent committee appointed by the Crown. It funds projects that meet MNR-approved criteria. To qualify, projects must be: a silvicultural activity on Crown land that addresses renewal of trees killed or damaged by fire; renewal of land where a licensee becomes insolvent; forest protection from insect or disease infestation; intensive stand management related to a critical wood supply; or, expenditures for Independent Forest Audits, Forest Resource Inventories, or conversion charges.

Table 2e - Minimum stumpage charge per cubic metre

Fiscal Year	Minimum Charge
2002/03	$3.44
2003/04	$3.48
2004/05	$3.60
2005/06	$1.36*
2006/07	$3.34

** In 2005, a retroactive stumpage adjustment in the amount of $70,000,000 was made for all wood invoiced in 2005/2006 fiscal year. This adjustment accounts for the lower minimum charge value for wood harvested during the 2005/2006 period*

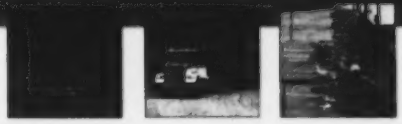


Table 2f shows the direct payments from the forest industry to the various government accounts during the last five fiscal years. The Forest Renewal Special Purpose Account will be phased out when all management units currently under direct management by the MNR are converted to SFLs.

Year	Forestry Futures Trust	Consolidated Revenue Fund	Forest Renewal Trust	Forest Renewal SPA[c]	Total Payments
2002/03	$11,880,265 [a]	$90,579,662	$88,951,235	$3,111,670	$194,522,832
2003/04	$10,301,366	$104,492,746	$69,092,327	$1,391,232	$185,277,671
2004/05	$11,726,196	$113,707,893	$84,379,204	$140,943	$209,954,236
2005/06	$12,723,888	$32,974,166 [b]	$44,682,680	$1,092,661	$91,473,395
2006/07	$13,432,025	$60,213,322	$88,741,322	$979,275	$163,365,944

[a] *Includes conversion funds of $50,044*

[b] *Reflects a $70 million stumpage rebate*

[c] *Amounts are as of March 31, 2006*

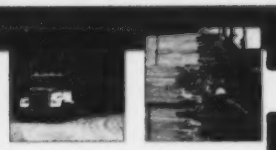
Note: Funds in the Forest Renewal Trust, the Forest Renewal Special Purpose Account, and the Forestry Futures Trust are not formally counted as revenue by the province, although funds in the Forest Renewal Special Purpose Account are held in the province's Consolidated Revenue Fund.

Table 2f - Crown charge payments by the forest industry

Private Woodlands

Ontario has 5.6 million hectares of productive forests under private ownership, 14 percent of the province's inventoried productive forest landbase. Approximately 95 percent (1.9 million hectares) of the productive forest south of the Area of the Undertaking (AOU) is privately owned, while 11.1 percent (3.7 million hectares) of the productive forest in the AOU is privately owned. Private forests account for 13.5 percent of Ontario's growing stock, including almost one-half of the gross total volume of hard maple and "other hardwoods".

In 2006, annual returns from forest resource processing facilities indicate that 8% of the gross total coniferous volume and 32% of the gross total deciduous volume processed in Ontario originates from private land. This equals almost 15% of the total volume processed. However, this does not fully recognize the contribution of Ontario's private land to provincial wood supply. Smaller facilities (processing less that 1,000 cubic metres/year) are not required to be licensed and do not file annual returns. Wood that leaves the province and wood that is not processed at a facility (e.g., fuelwood) are also not accounted for. The total contribution of



private land is likely closer to 17%. Table 2g summarizes volume originating from private land in Ontario that is processed at licensed facilities.

Reporting Category	Volume	2001	2002	2003	2004	2005[2]	2006[3]
Hardwood	m^3	1,874,611	1,167,848	2,606,580	2,607,132	2,600,208	1,776,068
	%	25.0%	25.9%	27.9%	27.3%	31.7%	31.9%
Softwood	m^3	1,393,063	1,563,866	1,820,750	1,547,376	1,443,852	1,101,860
	%	7.6%	7.9%	10.0%	8.4%	9.0%	7.9%
Combined Hardwood & Softwood	m^3	3,267,674	3,731,715	4,427,330	4,154,508	4,044,060	2,877,928
	%	12.7%	13.2%	16.1%	14.1%	12.4%	14.8%
Estimated Total from Private Land[4]	**%**	**14.7%**	**15.2%**	**18.1%**	**16.1%**	**14.4%**	**16.8%**

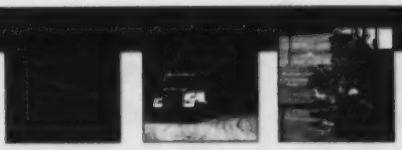
[1] *Source: electronic Facility Annual Return (eFAR) and Timber Resource Evaluation System (TREES)*

[2] *Data updated from previous annual report*

[3] *Estimate includes a 2% increment to account for: small facilities; wood that leaves the province; and, wood that is not processed at a facility (e.g. fuelwood)*

[4] *Data for 2006 was not complete at the time of annual report submission*

Table 2g - Wood volume from private land processed at licensed facilities[1]



Forest Sector Competitiveness Secretariat

In response to the recommendations received from the May, 2005 report from the Minister's Council on Forest Sector Competitiveness, the MNR, through the Forest Sector Competitiveness Secretariat, implemented new programs with the goal of addressing the challenges faced by the Ontario forest sector. These programs aim to provide a positive climate for investment and strengthen the industry's future through joint industry and government actions.

Loan Guarantee Program (LGP)

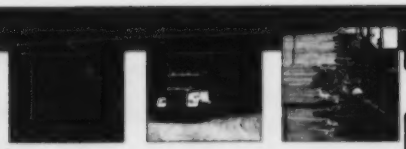
Announced in June of 2005, the LGP has the capacity to provide a series of loan guarantees up to a maximum of $350 million over five years. The loan guarantees will be issued to the forest industry's lenders to support and leverage new capital investment projects in:

- new value-added manufacturing;
- increased fibre use efficiencies;
- energy conservation/efficiency – where this is a primary purpose, and
- development of co-generation.

The Forest Sector Prosperity Fund (FSPF)

This program announced in September 2005 is providing a total of $150 million in conditional grants to the forest sector over three years. The funding grants will be issued to the forest industry to support and leverage new capital investment in projects similar to those identified under the LGP but also including:

- load management and electricity generation from biomass;
- advanced materials handling/efficiencies;
- new environmental technologies;
- associated infrastructure needs (such as hydro lines, rail lines, etc.), and
- worker training for transition to forest sector skill sets.



In the 2006-07 fiscal year:

- 15 offers for FSPF and LGP support were accepted.
- $41.4 million was provided in FSPF grants
- $10 million in loan guarantees were approved
- 3,185 direct jobs were created

Wood Promotions

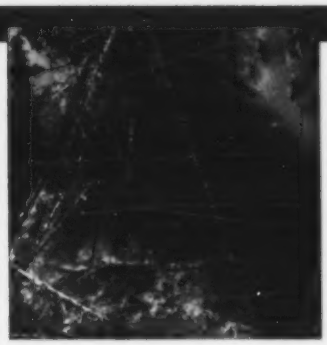
In it's first year the Ontario Wood Promotions Program, a $1 million a year program to support efforts to expand markets for the province's wood products and increase production of value-added wood products, met it's goal of funding a wide range of measures to increase capacity to produce and market value-added wood products. Within its mandate the Program was able to assist four Research and Training facilities to expand and enhance their abilities and programs to train the next generation of wood workers.

In addition, the Program supported three organizations to assist in their efforts to further the value-added wood industry: NOVA, Forintek's Northern Ontario Value-Added Initiative; the creation of the Ontario Wood Products Export Association; and, the Canadian Wood Council's WoodWORKS! Initiative, which promotes the use of wood in construction to expand markets for value-added wood products. A Wood Design competition was also initiated with colleges and Woodworks to spark initiative and interest in working with wood which resulted in some amazing entries. Funds were allocated to a number of applied research projects for value-added wood products as research is a vital step in building the sector and making the forest industry more competitive.

Northern Pulp and Paper Electricity Transition Program

To assist forest sector companies who have been hit hard by rising electricity costs, the $140 million Northern Pulp and Paper Electricity Transition Program was announced in November 2006. This three year program offers electricity rate relief to pulp and/or paper companies in Northern Ontario that use over 50,000 megawatt hours per year. Participating companies must prepare and implement an electricity transition plan designed to decrease electricity costs by a minimum 15% per unit of production within the three year term of the program thereby improving the mill's long-term cost competitiveness and viability.

Natural Disturbance



This chapter provides an overview of natural disturbances that occurred in Ontario forests in 2006/07. Natural disturbances such as forest fires, insects, diseases, and severe weather events occur throughout the life cycle of the forest, as illustrated in Figure 3a. Forest disturbances (except for diseases) are measured both by area (hectares) and volume (cubic metres) of trees killed, damaged, or harvested. Losses to tree diseases are normally chronic, and are estimated by calculating an annual average volume loss for all chronic diseases. Area affected is not recorded for chronic diseases. Estimates of area affected and wood volumes lost due to insects, disease, and severe weather are based on studies completed by the forest health monitoring partnership between the Canadian Forest Service and the MNR.

All estimates of disturbance area, both for the province and for the Area of the Undertaking (AOU), encompass all forest lands, including Crown forests, federal and private forest lands, and federal and provincial parks. Estimates for AOU disturbance volume, however, are based on Crown production forest lands only. Depending on the severity of damage to trees from these disturbances, it is often possible to conduct salvage operations in disturbed areas to harvest timber and reduce economic losses and the threat of forest fires. These operations are reported as harvesting, and discussed in Chapter 4.

Forest inventory descriptions are changed when stands are impacted by disturbance. However, the degree of disturbance impact required before the inventory description is changed is a subjective decision. The most significant disturbances are reported in the fall of the year following a disturbance.

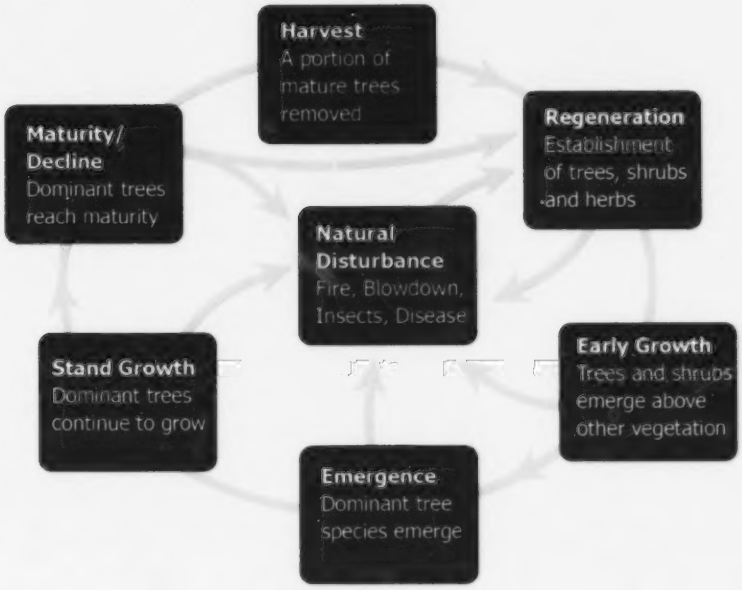


Figure 3a - The forest life cycle

Forest Fires

The MNR records the area and volume disturbed by forest fires across all the forested area of Ontario. The number and size of forest fires varies dramatically year to year, depending on the weather. This variability is particularly noted in Figure 3b, where the last five years of provincial fire disturbances are shown (as well as the average from the previous 10-year period).

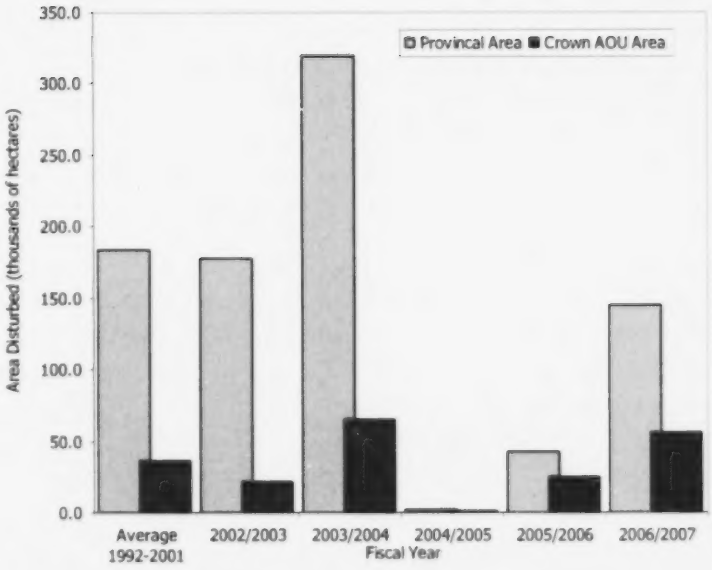


Figure 3b - Area disturbed by forest fire

Fire activity in 2004/05 and 2005/06 was unusually low, with less than 50,000 hectares burned provincially in both years. In 2006/07 fire activity was higher, with 144,838 hectares burned throughout the province, with an estimated volume loss in the AOU of 5.85 million cubic metres.

Estimated Losses in Area and Wood Volume Due to Mortality Caused by Natural Disturbances

Area in hectares, mortality volume in cubic metres, gross total volume (GTV)

	Average 1992-2001	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007
Abiotic Damage - Area and Volume Loss -Mortality						
Fire						
Provincal Area	183,828	177,501	318,716	1,799	42,775	144,838
Crown AOU Area	36,385	21,341	65,205	640	25,165	55,702
Crown AOU Volume	4,067,049	3,026,686	4,699,826	5,974	3,767,975	5,849,552
Blowdown						
Provincal Area	17,254	9,563	2,159	107	512,803	56,004
Crown AOU Area	7,876	7,447	732	69	412,147	41,306
Crown AOU Volume	1,362,597	17,451	5,431	-	25,068,527	4,747,905
Weather Damage						
Provincal Area	127,802	2,576,469	1,138	173,015	-	-
Crown AOU Area	65,144	1,950,037	1,066	152,700	-	-
Crown AOU Volume	19,223	10,553,412	7,065	962,082	-	-
Drought						
Provincal Area	158,881	70,681	-	-	65,798	7,071
Crown AOU Area	88,676	57,576	-	-	13,252	6,028
Crown AOU Volume	974,996	210,080	-	-	92,178	28,047
Biotic Damage - Forest Insects - Area and Volume Loss - Mortality						
Spruce Budworm						
Provincal Area	6,668,429	2,312	-	13,848	17,112	817,502
Crown AOU Area	3,333,531	-	-	5,820	6,866	555,548
Crown AOU Volume	6,535,120	-	-	3,949	4,482	235,411
Jack Pine Budworm						
Provincal Area	43,022	-	4,338	856	98,306	793,742
Crown AOU Area	27,294	-	2,942	23	92,225	677,543
Crown AOU Volume	4,583	-	1,378	246	41,974	259,827
Gypsy Moth						
Provincal Area	10,578	145,164	47,617	177	1,280	10,475
Crown AOU Area	4,652	42,987	6,564	1	-	1
Crown AOU Volume	1,425	41,422	3,669	-	-	-
Poplar/Birch Complex						
Provincal Area	-	-	-	512,216	1,862	-
Crown AOU Area	-	-	-	383,555	1,811	-
Crown AOU Volume	-	-	-	1,780,027	9,130	-
Other Insects						
Provincal Area	-	-	1,781	5,039	4,803	5,984
Crown AOU Area	-	-	342	520	529	2,544
Crown AOU Volume	-	-	-	2,560	2,310	129,532
Total - Biotic and Abiotic Damage - Area and Volume Loss - Mortality						
Provincal Area	**7,209,794**	**2,981,690**	**375,749**	**707,057**	**744,739**	**1,835,617**
Crown AOU Area	**3,563,558**	**2,079,389**	**76,851**	**543,328**	**551,996**	**1,338,672**
Crown AOU Volume	**12,964,993**	**13,849,052**	**4,717,369**	**2,754,837**	**28,986,575**	**11,250,274**

Table 3a - Estimated losses in area and wood volume due to mortality caused by natural disturbances

Severe Weather

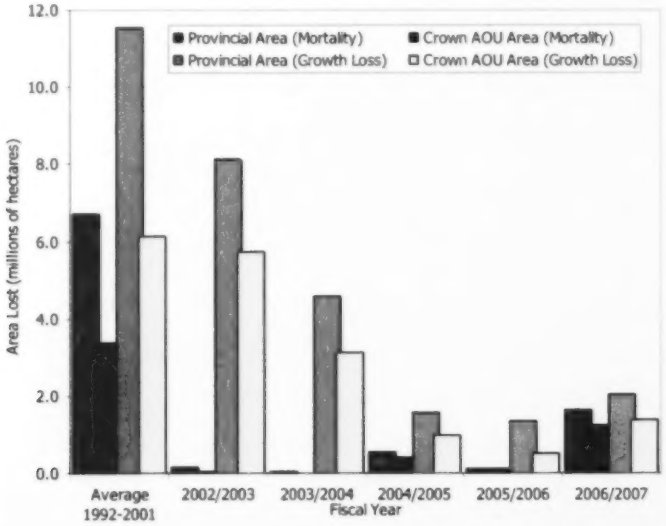
Windstorm damage (commonly referred to as "blowdown"), drought, and cold weather damage (ice/snow/ severe cold) are the most common weather related occurrences causing significant tree mortality and volume losses. Windstorms of various sizes occur periodically throughout the province. These storms must cause damage over a sizeable area before they are recorded. The area reported as being damaged by severe weather resulting in mortality, between 2002/03 and 2006/07, is shown in Table 3a. Severe weather damage causing growth loss for the same period is reported in Table 3b. The total Crown area damaged in the AOU in 2006/07 was approximately 41,000 hectares, leading to mortality of just under 5 million cubic meters.

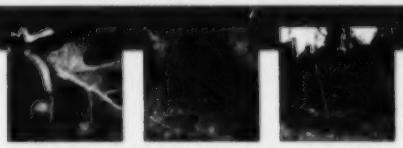
Insect Damage

The damaged area and volume loss caused by the most destructive insects are based on estimates of forested areas where 30 percent or more of the foliage was removed. Usually, a number of years of repeated defoliation are required to kill a tree. This varies for each pest, the tree species being attacked, and other factors. Forested areas may be defoliated by more than one insect. Area reported as defoliated may include different degrees of severity.

Area The total area infested by forest insects where tree mortality has occurred for the last five years is presented in Table 3a. Growth loss is reported in Table 3b.

Figure 3c - Estimated area disturbed by forest insects





Estimated Growth Losses in Area and Wood Volume Due to Natural Disturbances

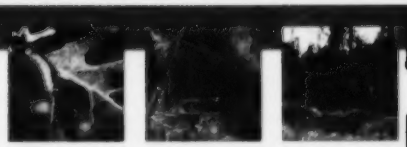
Area in hectares, mortality volume in cubic metres, current annual increment (CAI)

	Average 1992-2001	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007
Abiotic Damage - Area and Volume Loss - Growth Loss						
Weather Damage						
Provincal Area	84,745	-	-	173,015	594,462	-
Crown AOU Area	37,110	-	-	152,700	437,776	-
Crown AOU Volume	4,719	-	-	-	-	-
Drought						
Provincal Area	1,293,235	70,681	-	-	65,798	7,071
Crown AOU Area	675,712	57,576	-	-	13,252	6,028
Crown AOU Volume	150,799	28,737	-	-	7,883	1,671
Biotic Damage - Forest Insects - Area and Volume Loss - Growth Loss						
Spruce Budworm						
Provincal Area	2,816,836	131,122	229,754	279,448	337,245	817,502
Crown AOU Area	1,474,136	58,479	132,809	156,943	205,974	555,548
Crown AOU Volume	314,479	305,277	457,200	10,422	12,991	31,392
Jack Pine Budworm						
Provincal Area	196,486	-	-	856	98,306	793,742
Crown AOU Area	113,582	-	-	23	92,225	677,543
Crown AOU Volume	18,628	-	-	40	5,948	52,816
Forest Tent Caterpillar						
Provincal Area	4,682,704	7,505,625	4,147,979	1,272,413	469,795	370,772
Crown AOU Area	2,436,597	5,432,506	2,970,439	829,959	183,540	126,768
Crown AOU Volume	877,012	1,604,942	993,256	272,905	53,234	41,237
Gypsy Moth						
Provincal Area	10,578	145,164	47,617	177	1,280	10,475
Crown AOU Area	4,652	42,987	6,564	1	-	1
Crown AOU Volume	313	597	24	-	-	-
Poplar/Birch Complex						
Provincal Area	3,830,369	277,621	17,364	7,814	15,236	30,374
Crown AOU Area	2,108,202	205,094	8,116	4,250	8,505	21,274
Crown AOU Volume	234,239	13,143	811	415	9,055	17,265
Other Insects						
Provincal Area	6,980	44,025	121,490	12,174	409,741	22,743
Crown AOU Area	558	1,707	1,555	2,173	15,851	0
Crown AOU Volume	28	-	-	2	-	-
Total - Biotic and Abiotic Damage - Area and Volume Loss - Growth Loss						
Provincal Area	**12,921,934**	**8,174,238**	**4,564,203**	**1,745,896**	**1,991,863**	**2,052,680**
Crown AOU Area	**6,850,550**	**5,798,349**	**3,119,483**	**1,146,048**	**957,124**	**1,387,162**
Crown AOU Volume	**1,600,218**	**1,952,694**	**1,451,291**	**283,784**	**89,111**	**144,381**

Table 3b - Estimated growth losses in area and wood volume due to natural disturbances

Insect infestation area within the province where growth loss occurred was at low levels between 2002/03 and 2005/06, but increased somewhat in 2006/07 (Figure 3c).

Volume - Insects causing significant damage to Ontario's forests include spruce budworm, jack pine budworm, forest tent caterpillar, gypsy moth, and a number of insects that chronically attack poplar and white birch. The volume lost to insects in the AOU in 2006/2007 continued to be significantly below long term averages (Figure 3d). The estimated volumes



lost in the AOU between 2002/03 and 2006/07 due to mortality caused by damage from these insects is reported in Table 3a, while growth loss estimates from insect damage are reported in Table 3b. Most of the mortality losses experienced in 2006/07 from insects are attributable to outbreaks of jack pine budworm in northwestern Ontario and spruce budworm in the North Bay/Temagami area. Forest tent caterpillar in the Sudbury-Espanola area continues to be responsible for the majority of growth loss from insects. These growth losses from forest tent caterpillar spiked in 2002/03, and have declined subsequently to the lowest level in recent history, due to the cyclical nature of this species' infestations.

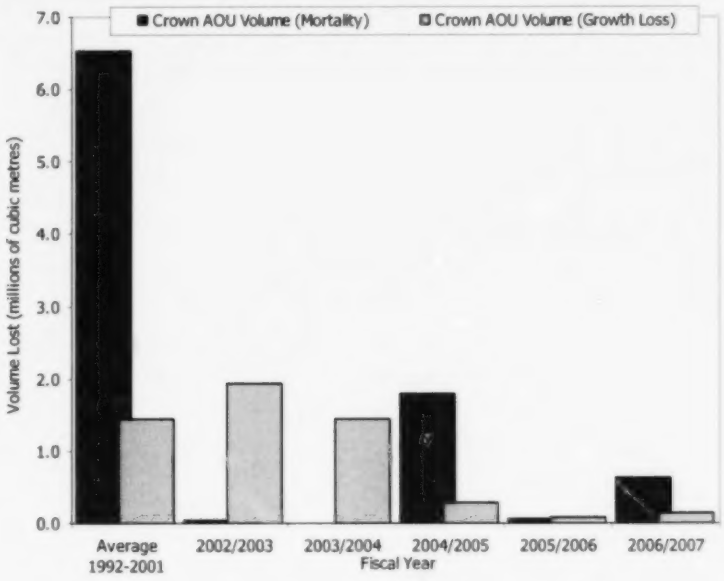


Figure 3d - Estimated Crown AOU volume lost to forest insects

Diseases

The annual changes in area and volume in a forest stand that result from natural, disease-induced mortality are not usually significant enough to be recorded for inventory update purposes. For example, chronic diseases such as root rot may kill only a few trees scattered throughout a forest stand. Therefore no area loss is recorded for most diseases. However an estimate of the volume of wood in the dead trees, and the volume of growth loss in the remaining live trees, is made annually. Volume estimates of the effects of chronic disease are derived from estimates of growth and mortality losses caused by rot, stem decay, and foliage dieback. These estimated losses to disease for the last five years have been relatively stable, at somewhat less than 10 million cubic metres lost annually (Table 3c). Most of the estimated losses are in the form of tree mortality.

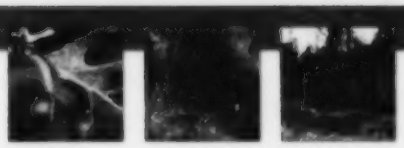
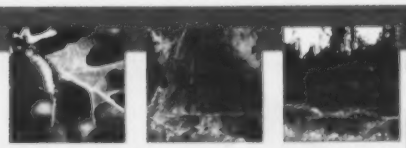


Table 3c - Estimated wood volume lost to diseases - growth loss and mortality

Estimated Wood Volume Lost to Diseases - Growth Loss and Mortality

Area in hectares, mortality volume in cubic metres (GTV), growth loss in cubic metres (CAI)

	Average 1992-2001	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007
Diseases - Volume Loss - Mortality - Crown AOU Volume						
Decay	5,008,873	4,608,435	4,346,456	4,870,389	4,774,892	4,867,600
Root Rot	4,049,563	3,522,820	3,503,441	3,159,060	3,097,117	3,141,138
Dieback	1,531,002	1,500,481	1,372,894	1,568,196	1,537,447	1,575,207
Other Diseases	171,153	-	-	6,258	-	12,008
Total	**10,760,592**	**9,631,736**	**9,222,791**	**9,603,903**	**9,409,456**	**9,595,952**
Diseases - Volume Loss - Growth Loss - Crown AOU Volume						
Root Rot	279,895	222,421	221,553	222,064	217,710	214,409
Hypoxylon	2,019,283	2,045,022	1,785,710	1,702,945	1,702,247	1,695,372
Aspen Decline	21,509	104,359	128,435	76,838	-	-
Total	**2,320,687**	**2,371,802**	**2,135,698**	**2,001,847**	**1,919,957**	**1,909,781**

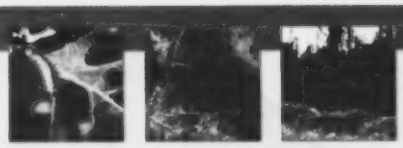


Measuring Forest Pest Areas and Volume Calculations

Each year, Ontario's forests are affected by many types of natural disturbances, ranging from wildfire and severe weather, to insects and a wide variety of diseases. In cooperation with the Canadian Forest Service (CFS), the Ministry of Natural Resources (MNR) conducts extensive surveys of all types of forest disturbances. Detailed mapping of affected area is conducted each field season, based on the size and severity of each disturbance. Most reconnaissance and mapping is done using aerial surveys, with ground checks to collect samples and data.

There are two main groups of natural forest disturbances measured in Ontario, abiotic and biotic. Abiotic disturbances are those caused by non-living factors, including wildfire, drought, and severe weather such as wind, snow or hail. Biotic disturbances are those caused by living factors such as insects (forest tent caterpillars, gypsy moths, spruce budworm), or diseases (hypoxylon, root rot, or Stillwell syndrome).

Many of the insects and diseases that occur in Ontario's forests do not actually kill the trees they infest, but simply reduce the amount of growth that occurs in a spring/summer season. For example, a forest tent caterpillar infestation can reduce aspen growth by 75% in a season, and white birch by 40%. This growth loss is recorded as current annual increment volume (CAI). Many years of repeated defoliation can eventually lead to tree mortality, and this is recorded differently, as gross total volume (GTV) of wood lost. Most abiotic disturbances like fire or blowdown cause major forest damage, and usually end up with significant tree mortality within the area of the disturbance. Each disturbance type is studied and growth loss or mortality factors are developed based on these field samples. Chronic tree diseases such as hypoxylon or root rot are not measured in area, as they are



assumed to occur in all trees to some extent, so estimates by tree species and age are calculated for the entire AOU, and reported for Crown forests.

Once field surveying is complete, digitized maps are overlaid on top of forest resources inventory (FRI) maps within the Area of the Undertaking (AOU), so growth loss and mortality volumes can be calculated for Crown forests. Total provincial areas are also recorded, as many disturbances occur in th e northern boreal forest, as well as southern Ontario, but volumes are not calculated for these areas.

- The MNR's Annual Report on Forest Management gives a 5 year provincial level snapshot of:
- total provincial area affected
- Crown forest area within the AOU
- estimated growth loss for Crown forests within the AOU (CAI)
- estimated mortality loss for Crown forests within the AOU (GTV)

Annual maps showing major infestations are now part of the MNR's website (www.mnr.gov.on.ca).

Forest Harvest

The level of allowable harvest in a management unit is determined through the forest management planning process. The MNR requires that the allowable harvest for a management unit be set at a level that will sustain a healthy forest over time. Harvesting in each management unit is controlled and monitored according to an approved Forest Management Plan (FMP). The Forest Management Plan specifies both the allowable harvest area and the associated harvest volumes. Note, however, that control of allowable harvest is by area, not volume.

Natural Disturbance Pattern Emulation

The fundamental principle in emulating natural disturbance is to harvest and regenerate Ontario's forests in more natural patterns, ensuring that the needs of wildlife species are met, and healthy diverse ecosystems with their many benefits are passed on to future generations. Under the *Crown Forest Sustainability Act* (CFSA), and subsequently with the publication of the *Forest Management Guide for Natural Disturbance Pattern Emulation* (NDPEG) in 2001, Ontario has been changing its forest practices so that forest biodiversity and natural processes are more proactively maintained. This is accomplished in part by emulating as closely as possible the landscape patterns produced by forest fires (i.e. variation in size and shape), most notably during the implementation of the clearcut silvicultural system in the boreal forest.

While forest harvesting cannot precisely duplicate natural disturbances in the forest, the NDPEG promotes timber harvesting practices that emulate the natural range and pattern of fire disturbances (both small and large). This variation in harvest pattern creates desirable habitat for various wildlife species. Smaller disturbances favour the creation of habitat for species such as moose, black bear and ruffed grouse, because this size of disturbance creates a lot of "edge" (where different forest types, features, or age classes come together). Larger disturbances, over time, create habitat for species which prefer large, uniform forests, such as the American marten, the woodland caribou, and the great grey owl.

Figure 4a - NDPEG harvest leaving 25 plus stems per hectare as residual

Wildlife species have evolved in forest patterns that have largely been shaped by wildfire. Therefore the widest possible range of wildlife species will benefit by emulating the broadest range of natural disturbance patterns.

Silvicultural Systems Used in Ontario

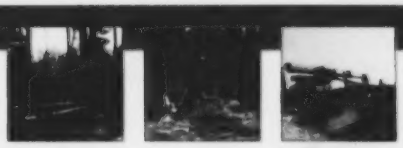
Harvesting in Ontario is one of a series of actions that, when combined with other actions of forest renewal and maintenance (e.g., tending, protection, etc.) represent a silvicultural system. These systems are classified according to the method of harvesting. Ontario uses three silvicultural systems: selection, shelterwood, and clearcut.

Selection Silvicultural System

Mature, unhealthy or undesirable trees are continuously removed, individually or in small groups over an entire area, throughout the forest life cycle. This method produces stands with trees of different ages, and is referred to as uneven-aged management.

Figure 4b - Selection harvest in maple birch forest

Figure 4c - Shelterwood harvest in white pine forest



Shelterwood Silvicultural System

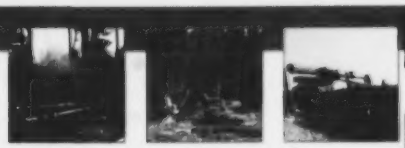
Mature trees are harvested in a series of two or more cuts to encourage natural regeneration and growth under or next to the residual trees. This is done by cutting trees uniformly over the stand area or in groups or narrow strips. Stands with trees approximately the same age are produced with this system.

Clearcut Silvicultural System

Forest harvest under the clearcut system is usually completed in one operation. Individual trees within the harvest area and/or parts of forest stands are retained for silvicultural reasons (e.g., seed trees) or to provide protection for forest values (e.g., marten habitat and cavity dwelling birds). Regeneration methods used can be natural, assisted (e.g., planting) or a combination of both methods. This method produces stands where most of the trees are about the same age, and is referred to as even-aged management.

Figure 4d - Clearcut harvest in black spruce forest

Average and Maximum Size of Clearcuts - The CFSA requires "using forest practices that within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air, and social and economic values, including recreational values and heritage values".

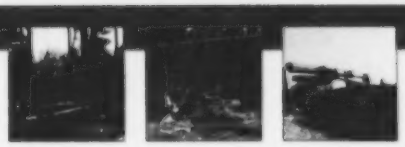


The Timber Class EA decision provided for a range of clearcut sizes, not to exceed 260 hectares, unless supported by sound biological or silvicultural reasons. The EA Declaration Order (MNR-71, as amended by MNR-71/2) which replaced it states that for clearcut harvest operations, areas are to be selected for harvest in accordance with the direction and standards relating to the emulation of natural disturbance patterns contained in MNR's forest management guides. That direction provides for a range of sizes of clearcuts, generally not to exceed 260 hectares. It also includes a standard that calls for 80% of the number of planned clearcuts in the Boreal Forest Region, and 90% of the number of planned clearcuts in the Great Lakes-St. Lawrence Forest Region, to be less than 260 hectares in size. In addition the direction also includes requirements for temporal and spatial separation requirements for planned clearcuts. When clearcuts exceed 260 hectares, each clearcut larger than 260 hectares is to be recorded in the FMP with an accompanying silvicultural or biological rationale.

Cut patterns, sizes, and distribution are developed based on the applicable forest management guides in accordance with natural conditions, historical disturbance and landscape patterns, forest types, silvicultural characteristics of tree species, and fish and wildlife habitat needs. When appropriate, forest management operations within cut blocks are further altered or prohibited to protect identified site-specific forest values by implementing measures (e.g., reserves and harvest restrictions) specified in the guides.

The NDPEG provides direction to forest managers on designing harvest areas to more closely resemble natural disturbances by leaving more standing trees, as individuals and as peninsular and insular patches, scattered throughout irregularly-shaped harvest areas. It also contains guidance for measuring clearcut size. This Guide is being implemented on individual management units over five years as new FMPs are prepared, and began with plans approved for implementation in 2003.

Condition 32 (b) of the EA Declaration Order requires a summary of the size and frequency parameters of clearcuts. In the past, area statistics for average and maximum size clearcuts often referred to the area cut in a particular year, without consideration of harvests in previous years or nearby clearcuts. The use of a consistent method of measuring and reporting clearcuts, including consideration of contiguous harvest from year to year, will improve as the NDPEG is implemented. Meanwhile, until clearcuts are measured and reported consistently throughout the province following the direction in the NDPEG, comparison of the average and maximum clearcut sizes between management units may not be valid.



Boreal Forest - Other key forest management guides used to design clearcut sizes and patterns within the Boreal Forest include:

- *Timber Management Guidelines for the Provision of Moose Habitat* and
- *Forest Management Guidelines for the Conservation of Woodland Caribou: A Landscape Approach.*

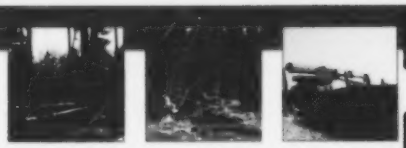
The provision of moose habitat includes direction for range management and specific stewardship for values such as aquatic feeding areas. In locations where significant woodland caribou populations occur, application of the woodland caribou guide takes precedence over application of the moose habitat guide for determination of clearcut size.

In 2006/07, 39 management units within the Boreal Forest reported average clearcut sizes ranging from 30 to 477 hectares. Maximum clearcut sizes ranged from 88 to 2,565 hectares. There were 1,136 clearcuts reported in 2006/07, 117 of which (10%) had current harvest areas larger than 260 hectares.

As described above, some clearcuts are located adjacent to areas which had recently been harvested. When this occurs, the result is essentially an addition to an existing clearcut. This effect is considered in planning and reporting following the direction of NDPEG. The clearcut statistics, when adjacent cut blocks are considered, are as follows: average clearcut sizes ranged from 30 to 2,520 hectares. Maximum clearcut sizes reported ranged from 88 to 25,536 hectares.

Great Lakes-St. Lawrence Forest - In the Great Lakes-St. Lawrence forest, the primary stand-replacing natural disturbance agents have been wind and fire events. Through an ecosystem management approach to landscape-level management, forest managers attempt to address the habitat requirements of many wildlife species. The specific habitat requirements of selected species are also considered. Some species, such as pileated woodpecker, are area sensitive and need large blocks of forest. Other species such as white-tailed deer prefer small patches and an abundance of edge habitat. Some species, such as moose, require a complex mosaic of forest types and ages. To provide for a diversity of habitat needs when planning for forest harvest, a variety of harvest area sizes must be employed.

In 2006/07, nine management units within the Great Lakes-St. Lawrence Forest reported average clearcut sizes ranging from 7 to 133 hectares. Maximum clearcut sizes ranged from 26 to 712 hectares. There were 149 clearcuts reported in 2006/07, of which four clearcuts (3%) had current harvest areas larger than 260 hectares.



In the Great Lakes St-Lawrence forest clearcutting is not used as frequently as it is in the Boreal forest. However, clearcuts are sometimes created that are adjacent to other recent clearcuts. When adjacency is taken into account, the clearcut statistics are as follows: average clearcut sizes ranged from 11 to 142 hectares. Maximum clearcut sizes ranged from 38 to 1027 hectares.

The combined total management units reporting clearcuts for the Boreal forest and the Great Lakes St-Lawrence forest is greater than the total number of units within the AOU. Two management units are reporting clearcuts in both the Boreal forest region and the Great Lakes St-Lawrence forest region. These management units transition both forest regions.

Harvest Area

The area harvested annually using the three silvicultural systems, from 2002/03 through 2006/07, is shown in Figure 4e. Total area harvested using the clearcut system decreased in 2006/07 to approximately 157,000 hectares; this is below the normal range of variation for the five year period. Area harvested using both the shelterwood and selection systems stayed within the normal range of variation, at 13,192 hectares harvested using shelterwood and 12,826 hectares using selection harvesting, respectively.

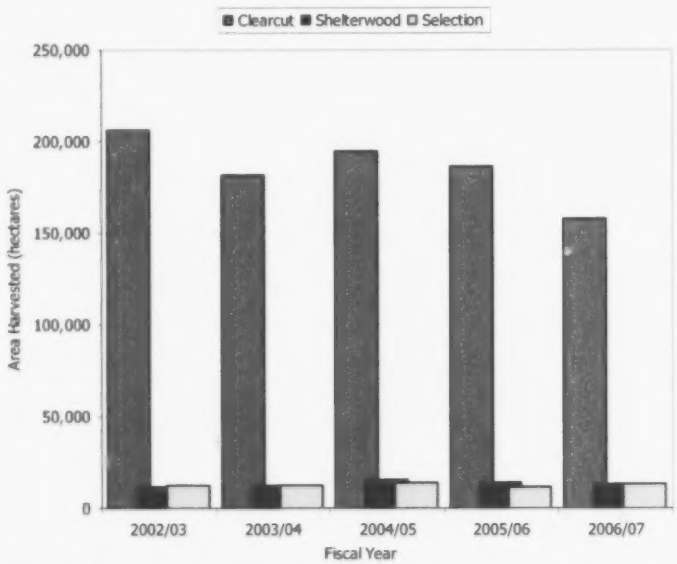


Figure 4e - Area harvested by silvicultural system

Figure 4f illustrates the total provincial area harvested from 2002/03 through 2006/07, and includes a summary by MNR region for 2006/07. The pattern of harvest across the province changed somewhat from previous years, with the Northwest Region having the largest regional harvest area (45%) this fiscal year, while the Northeast Region was second (43%). The Southern Region, which has a much smaller forest area, had the lowest regional harvest at 12% of the total provincial harvest (up from 9% the previous year).

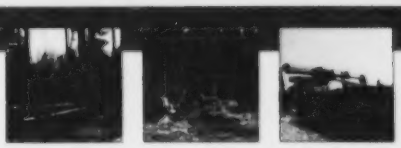


Figure 4f - Area harvested by year and MNR Region.

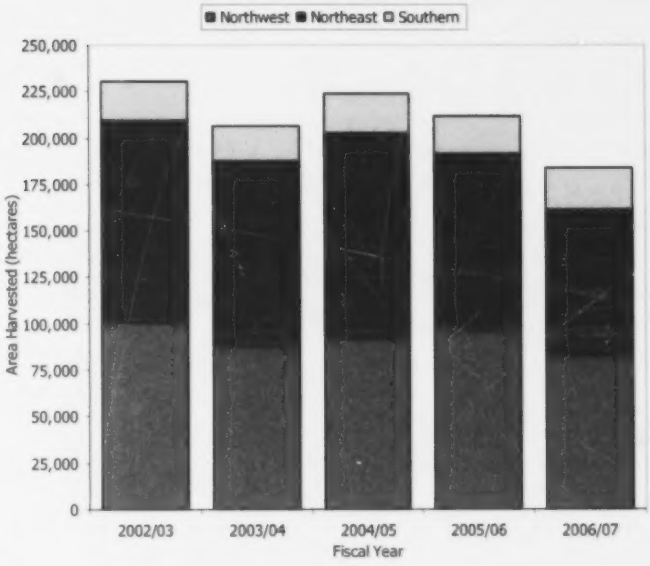
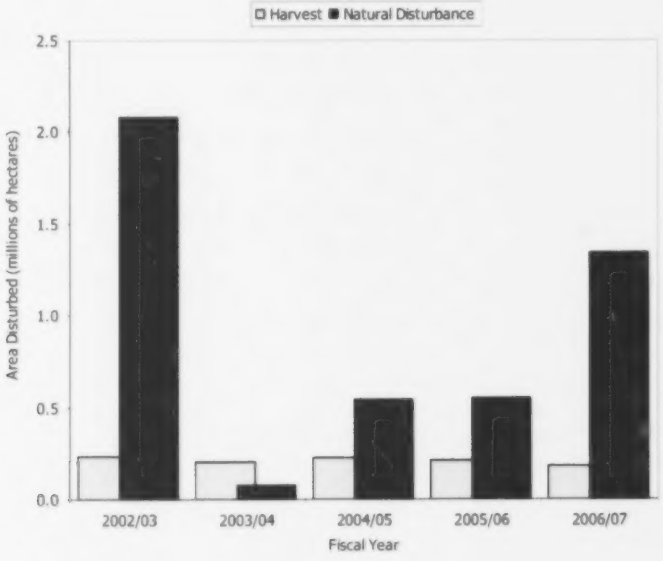
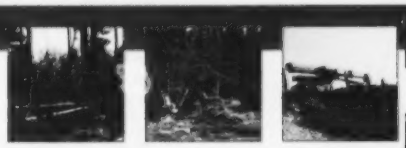


Figure 4g shows the total harvest area from 2002/03 to 2006/07 compared to the area disturbed by natural causes for the same period. In 2006/07 the area harvested was less than 14% of the area disturbed naturally.

When large areas are burned by fire or destroyed by blowdown or insects, forest companies often harvest some of the remaining dead and damaged wood. This salvage harvest is usually carried out soon after the disturbance. In 2006/07 there was a decrease in the amount of salvage harvest. A total of 6,840 hectares were salvaged.

Figure 4g - Forest area disturbed by harvest and natural causes within the AOU





Harvest Volume

Total provincial softwood and hardwood volume harvested from 2002/03 through 2006/07 is illustrated in Figure 4h. In 2006/07, the total provincial harvest volume was approximately 18.8 million cubic metres, which is well below the range of normal variation of harvest volume over the past five years.

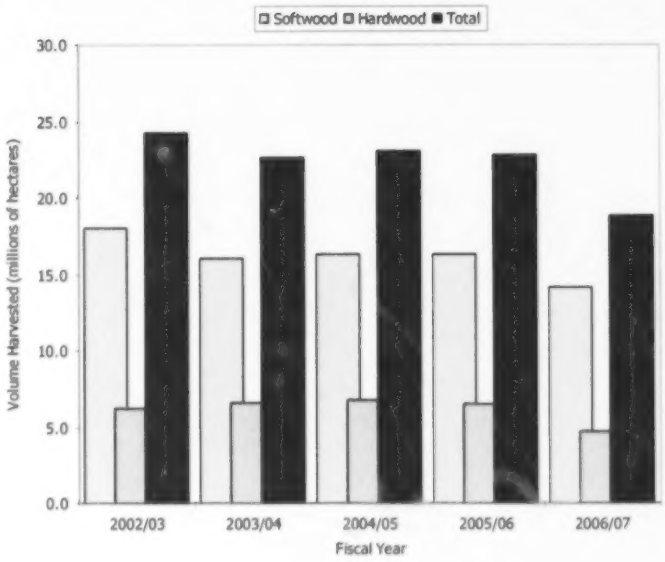


Figure 4h - Hardwood and softwood volumes harvested on Crown land

Wood volumes harvested in 2006-07 in the MNR's three regions are shown in Figure 4i.

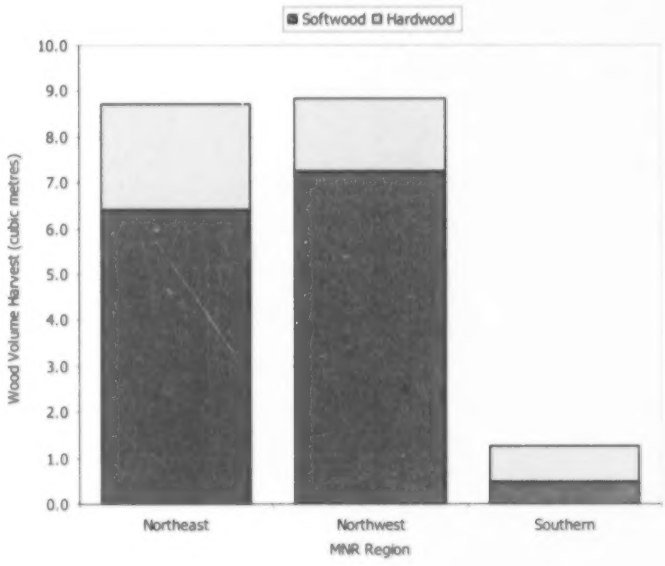
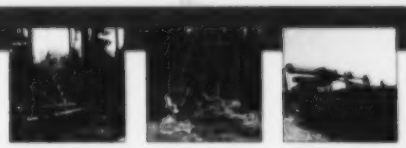


Figure 4i - Wood volume harvested by MNR region and species group, 2006/07

The volume of wood harvested per hectare fluctuates due to changes in the types of stands harvested, delayed delivery of wood stored in the bush to mills, increased utilization, and/or changing market conditions. In 2006/07 the average volume harvested was 102 cubic metres per hectare (Figure 4j). This is



variation for average harvest volume per hectare in the past 10 years.

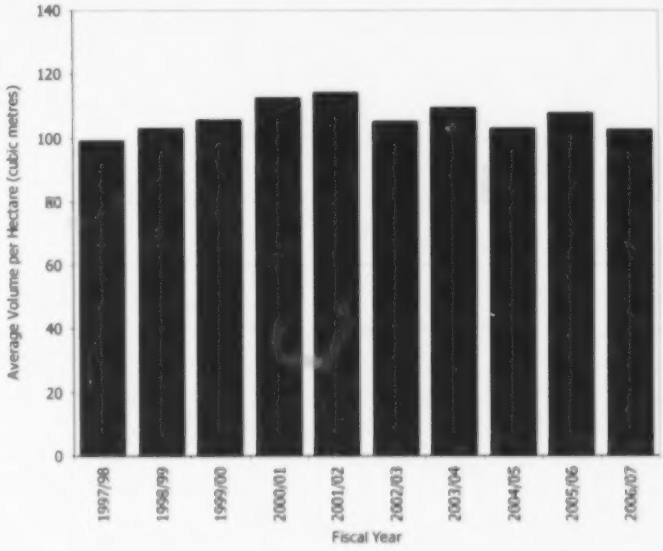
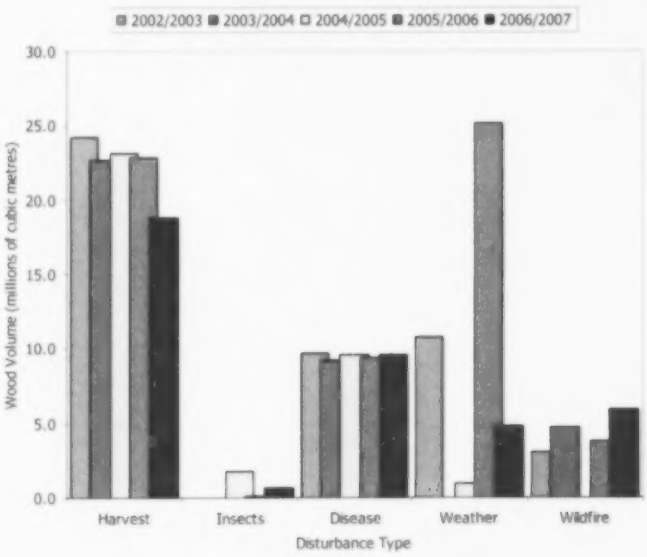


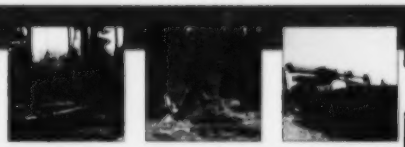
Figure 4j - Average volume of wood harvested per hectare

Figure 4k shows the harvest volume from 2002/03 to 2006/07 compared to the mortality volume from natural causes for the same period. In 2006/07 the volume harvested was 90% of the total mortality volume caused by insects, disease, severe weather and fire combined.

Figure 4k - AOU wood volume for harvest and natural disturbances

The harvest volumes by individual species for 2002/03 through 2006/07 are shown in Table 4a. Fluctuations in the harvest volumes of individual tree species from year to year are largely due to changes in market demand, and variations in the species encountered on the areas harvested. As can be seen in the table, harvest of most boreal species dropped significantly in 2006/07.





Harvest volume by species (cubic metres)

Softwood Species	2002/03	2003/04	2004/05	2005/06	2006/07
White Pine	487,271	463,862	614,085	474,262	575,244
Red Pine	210,009	243,322	259,799	227,010	254,490
Jack Pine	6,256,098	5,732,330	5,055,318	5,413,286	4,647,262
Spruce	10,331,583	9,071,354	9,814,720	9,543,163	8,180,656
Hemlock	32,496	23,786	29,125	25,456	32,314
Balsam Fir	621,254	469,154	484,085	533,366	418,358
Cedar	26,427	17,633	43,049	65,389	12,681
Larch	34,587	31,770	39,292	57,947	20,509
Other Softwoods	0	7	554	4	8
Total Softwoods	**17,999,725**	**16,053,218**	**16,340,026**	**16,339,883**	**14,141,523**

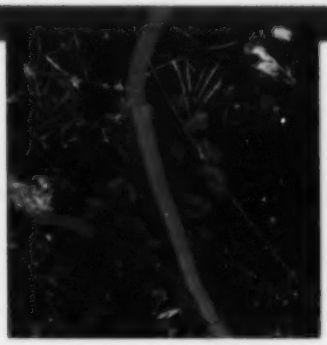
Hardwood Species	2002/03	2003/04	2004/05	2005/06	2006/07
Maple	584,570	628,950	656,289	664,641	697,945
Yellow Birch	45,760	49,783	64,646	63,976	51,442
White Birch	458,370	665,812	686,375	817,445	543,362
Oak	36,028	39,656	39,918	45,412	37,581
Beech	38,821	41,385	43,788	47,765	49,540
Poplar	5,057,653	5,111,494	5,217,809	4,795,794	3,266,870
Basswood	11,888	13,903	12,786	15,194	13,451
Ash	3,520	3,822	5,099	6,083	7,203
Other Hardwoods*	2,135	2,104	3,638	3,634	3,803
Total Hardwoods	**6,238,745**	**6,556,910**	**6,730,347**	**6,459,943**	**4,671,197**

Provincial Total	**24,238,471**	**22,610,128**	**23,070,373**	**22,799,826**	**18,812,720**

** The volumes for black cherry, ironwood, butternut, and elm are too small to be shown individually. They have been added together under Other Hardwoods.*

Table 4a - Harvest Volume by Species

Forest Renewal

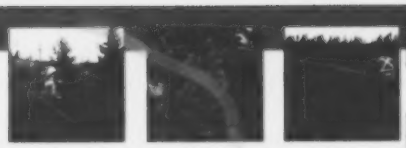

Under the terms of the *Crown Forest Sustainability Act* (CFSA), forest managers are responsible for fully renewing the forests where they operate. Sustainable Forest Licence (SFL) holders must ensure that areas harvested are renewed to the silvicultural standards established in Forest Management Plans (FMPs), to ensure the long-term health of Crown forests. Long-term forest health is also promoted by forest maintenance operations. These operations include tending carried out to improve the survival, growth, or quality of a regenerating forest, and protection operations carried out to manage or prevent the damage caused by forest insects and diseases.

Forest Renewal

Activities needed to ensure the successful regeneration of all harvested areas are specified in all approved FMPs in Ontario. Crown forests are renewed by both assisted and natural regeneration techniques, and these activities are reported annually.

Planting and seeding are the two most common types of assisted regeneration. Planting includes planting of bareroot and container seedlings. Container seedlings now comprise almost 100 percent of the stock used in planting programs across Ontario. Seeding may be carried out directly from aircraft or by broadcast seeders on the ground. Renewal activities also include preparing an area disturbed by harvest or natural causes for regeneration through mechanical or chemical means, or by prescribed burning. The regeneration establishment period, from harvest to completion of the planting or seeding, can take up to five years.

Many tree species can re-establish themselves on a site without planting or seeding. These natural mechanisms include seeding from the adjacent forest or from cones left on site after the harvest (jack pine), suckering of stumps and roots (poplar), and continued growth of



young trees remaining on the harvested area (black spruce). This natural regeneration can be enhanced through careful selection of the silvicultural system and harvest method (see Chapter 4).

In the past, reporting of natural regeneration annually at the time of harvest was not emphasized because some forest managers preferred to report it periodically after regeneration surveys had been completed. This delay in reporting, plus the regeneration establishment period, has in the past resulted in the reported annual renewal levels being substantially less than the reported annual harvest levels. With reporting procedures introduced in 1996, planned natural regeneration is now reported promptly upon completion of the harvest. In cases where this planned natural regeneration is not successful forest managers may apply assisted regeneration methods later on (e.g. planting, seeding or scarification).

Forest renewal operations from 2002/03 to 2006/07 are reported in Table 5a. Forest renewal operations were conducted on 212,705 ha of Crown land in 2006/07. Slightly less than 50% of this was assisted regeneration. Total regeneration was down 13% from the previous year. The area renewed in 2006/07 includes operations on areas harvested and naturally depleted in 2006/07 or earlier.

All units are area in hectares unless otherwise stated

Regeneration Method	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Average
Natural Regeneration						
Clearcut Silvicultural System						
Block Cut	43,299	50,076	56,682	107,073	73,911	66,208
HARP/HARO/CLAGG	12,346	14,039	748	14,823	14,288	11,249
Strip Cut	16	31	0	2	0	10
Seed Tree Cut	7,573	4,121	1,929	1,233	1,164	3,204
Shelterwood System	5,757	9,635	6,543	6,766	8,450	7,430
Selection System (uneven-aged)	10,577	10,968	8,276	11,715	12,323	10,772
Subtotal Natural Regeneration	**79,567**	**88,871**	**74,178**	**141,613**	**110,135**	**98,873**
Assisted Regeneration						
Planting	93,492	84,499	86,487	85,187	82,538	86,441
Trees (000's planted)	134,158	123,444	127,553	126,708	119,138	126,200
Seeding						
Direct	15,082	38,151	16,636	15,116	17,945	20,586
With Site Preperation	2,362	4,068	2,968	2,828	1,860	2,817
Scarification	135	508	113	108	224	218
Subtotal Assisted Regeneration	**111,071**	**127,226**	**106,203**	**103,240**	**102,567**	**110,061**
Total Regeneration	**190,638**	**216,097**	**180,381**	**244,852**	**212,703**	**208,934**
Site Preparation						
Mechanical	63,488	66,014	63,298	60,087	50,455	60,668
Chemical	5,113	4,910	6,874	10,943	9,131	7,394
Prescribed Burn	143	2,223	0	401	0	553
Total Site Preparation	**68,744**	**73,147**	**70,172**	**71,431**	**59,586**	**68,616**

Table 5a - Provincial renewal operations

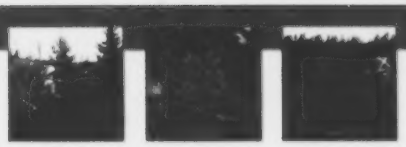
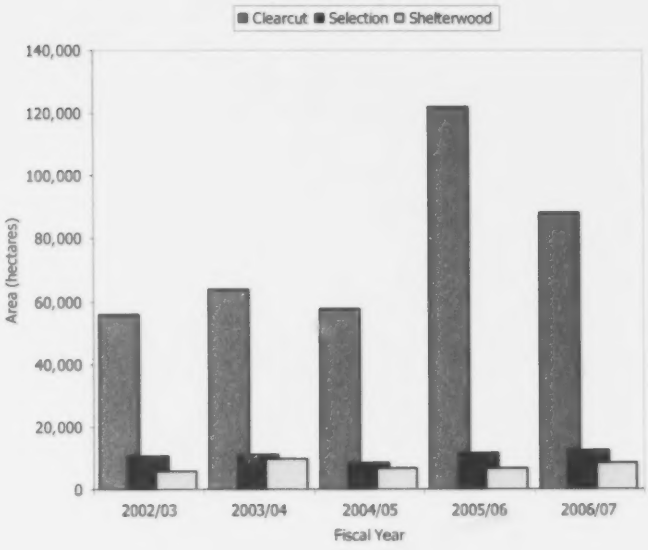


Figure 5a - Regeneration area by silvicultural system



The choice of silvicultural system or harvest method (Figure 5a) used is largely dependent on the biological requirements of the different tree species (see Chapter 4).

Regeneration under the uneven-aged selection silvicultural system is carried out in tolerant hardwood stands in the Southern Region and, to some extent, in the Northeast Region.

The clearcut silvicultural system is the primary system used in the Boreal Forest of the Northeast and Northwest regions, mainly in stands containing jack pine, black spruce, poplar, and white birch. Regeneration using the strip cut method is a variation of the clearcut silvicultural system. It involves the removal of the stand in progressive strips or blocks in more than one operation. The strip cut method is prescribed to encourage natural regeneration, provide wildlife habitat, protect fragile sites, or for aesthetic reasons. Regeneration using the seed tree method is also a variation of the clearcut silvicultural system. It involves the removal of all commercial trees from an area, except for a small number of seed bearing trees left singly or in small groups for regeneration purposes. The seed tree method is used primarily in white pine and red pine stands in the Northwest and Northeast regions. Natural regeneration using the shelterwood system occurs mainly in white pine and tolerant hardwood stands in the Northeast and Southern regions.

The total number of seedlings planted in 2006/07 was 119 million, a decrease of 6 percent from the previous year (Figure 6b). The use of container seedlings has remained relatively stable at more than 99 percent of the total stock used.

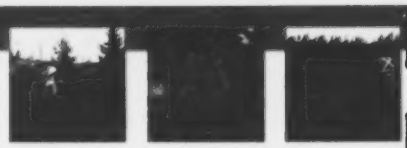
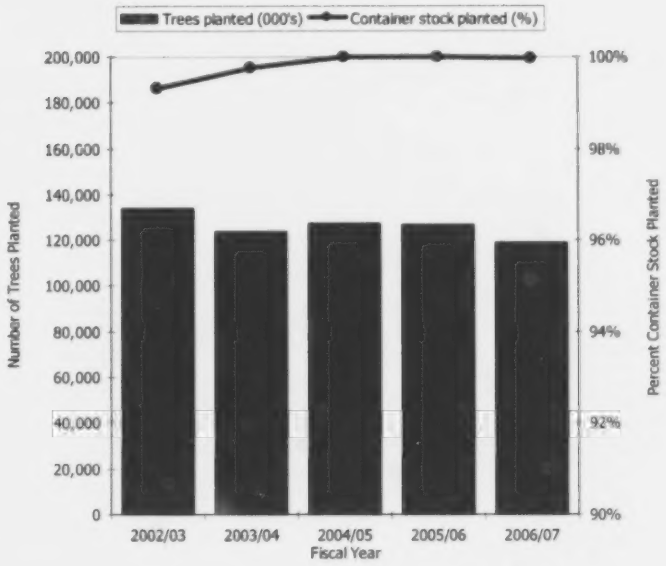


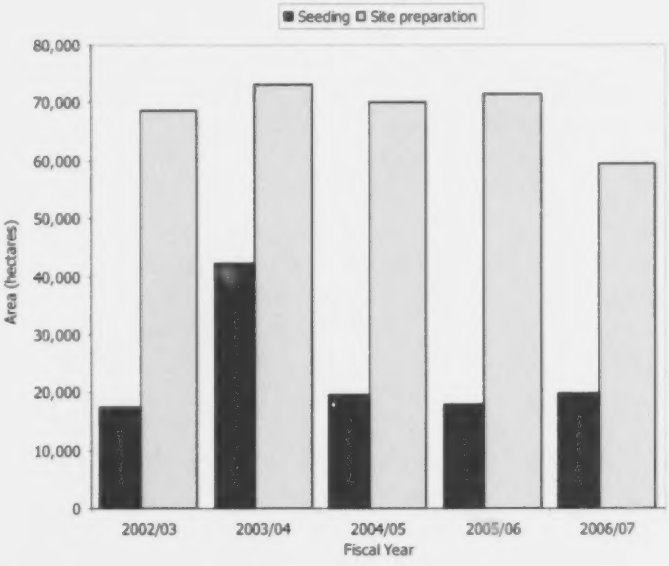
Figure 5b - Total number of trees planted



Jack pine is the main species used for seeding, most of which occurred in the Northwest Region. The overall seeding levels in 2006/07 increased 10 percent from the previous year.

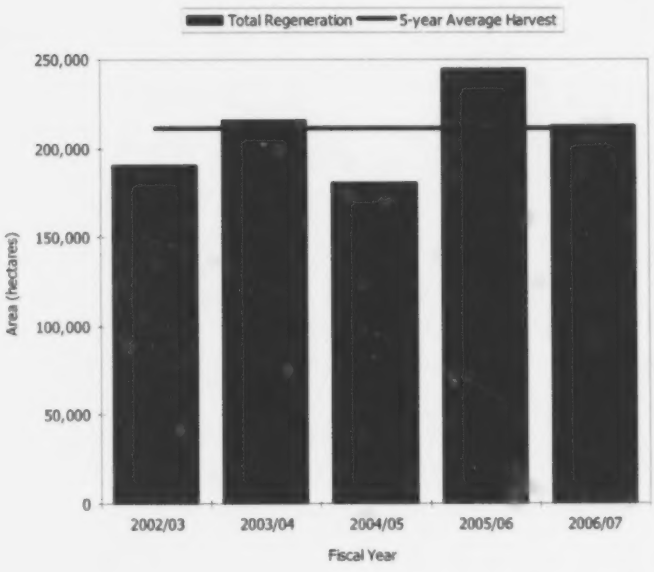
Mechanical site preparation is the main site preparation method used in all regions, followed by chemical site preparation. Provincially, the total area treated with site preparation in 2006/07 was 59,586 hectares, a decrease of almost 17 percent from the previous year (Figure 5c).

Figure 5c - Seeding and site preparation area



The total reported level of regeneration (including both natural and assisted regeneration) decreased by 32,145 ha compared to the previous year (Figure 5d). This decrease is primarily due to a lower level of reported natural regeneration. The amount of assisted regeneration decreased less than 1 percent from the previous year. Regeneration levels tend to follow fluctuations in harvest and, to a lesser degree, forest depletions from natural causes such as forest fires and insect epidemics.

Figure 5d - Provincial forest regeneration area



Comparison of harvest and regeneration levels on an annual basis is not appropriate because of the regeneration establishment period and the reporting delay. Comparison of average harvest and regeneration levels over a five-year period is more appropriate. The 5-year average total provincial harvest area was 211,344 hectares. The 5-year average total provincial regeneration level was 208,843 hectares, or within approximately 1% of the average harvest level. More complete reporting requirements for natural regeneration have resulted in reported regeneration levels moving closer to reported harvest levels over the last five years.

Silvicultural Effectiveness Monitoring

Harvest and renewal activities are reported annually in the year in which they occur. Determination of the success of these activities in regenerating the forest occurs by specific assessment methods, conducted a number of years (usually 5 to 15 years) after regeneration treatments are completed. For reporting purposes in 2006/07 MNR is generally relying on data derived from Geographic Information System layers versus tabular data used in prior years.

Free-To-Grow (FTG) assessments are an effectiveness monitoring tool that provide an indication of the success of silvicultural treatments, and information used to project the future forest condition. These assessments involve a variety of techniques, including field measurement of trees on sample areas of the forest, aerial surveys, and remote sensing. Some forest managers conduct these surveys annually, while others prefer to accumulate larger blocks that they assess once every few years. The Forest Renewal Trust Fund provides funding for these surveys on all management units, and many forest companies have assessed both their scheduled areas and backlog areas.

In the forest management planning process, silvicultural ground rules are developed for all stands proposed for operations. The prescription for a stand identifies silvicultural treatment packages that should result in the development of a prescribed future forest unit, and also identifies other future forest units that will be accepted should the prescribed result not occur. Of the total of 197 thousand hectares assessed in 2006/07, 178 thousand hectares were assessed as being FTG.

Of the total area assessed for FTG, 85 thousand hectares (43 percent) were approved as having achieved the prescribed FTG standard within a set time period. This result varies by MNR region, from 28 thousand hectares (34 percent) in the Northwest Region and 43 thousand hectares (44 percent) in the Northeast Region to 13 thousand hectares (85 percent) in the Southern Region.

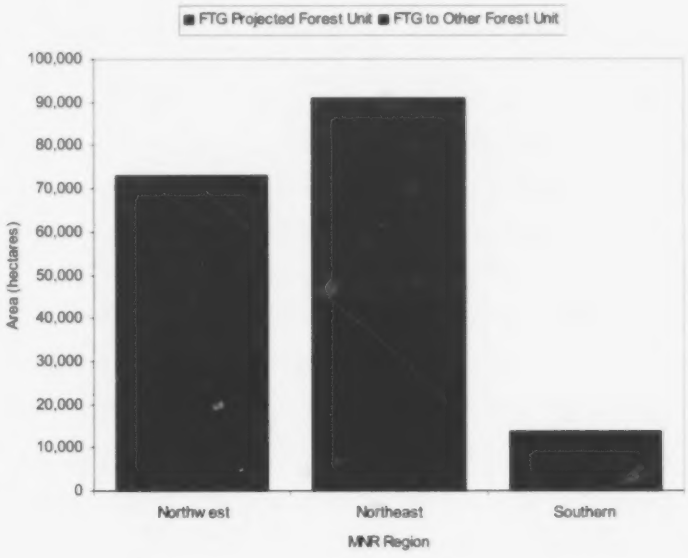


Figure 5e - Summary of area declared free-to-grow by MNR region, 2006/07

An additional 93 thousand hectares (47%) was approved as having achieved an alternate acceptable FTG standard. Again this result varies by MNR region, from 45 thousand hectares (54 %) in the Northwest Region, to 48 thousand hectares (48%) in the Northeast Region and 644 hectares (4%) in the Southern Region (Figure 5e).

The remainder (approximately 10% of the area assessed) did not achieve the prescribed or alternate FTG standard at the time of assessment. These areas may require additional treatments, or may simply require more time for the trees to grow to an acceptable height.

A summary of the area assessed and approved as FTG to the prescribed standard for the period 2002/03 to 2006/07 is presented in Figure 5f. During the late 1990s the area assessed was greater than 300 thousand hectares, with more than 250 thousand hectares annually declared FTG. These high levels of assessments declined to a low of 169 thousand hectares assessed in 2000/01 and then began to rise again until 2004/05 when they again began to decrease. This latest decrease could be reflective of the general economic situation affecting Ontario's forest industry discussed elsewhere in this report. The total area declared FTG followed a similar trend to the area assessed.

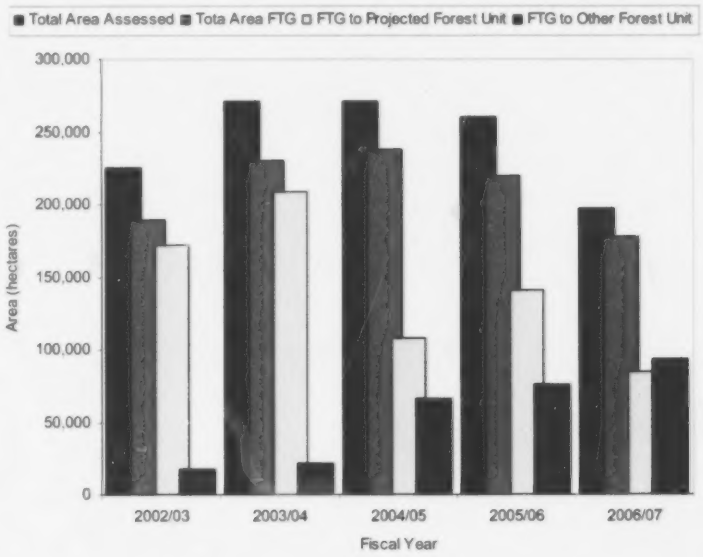


Figure 5f - Summary of area declared free-to-grow by fiscal year

The area declared FTG to the prescribed standard was greater in the first two years of the present five-year period, than it has been in the last three years. The area declared FTG to an alternative acceptable FTG standard stayed relatively constant for the first two years of the five-year period, and then tripled and quadrupled over the remaining three years. A discrepancy in the actual field conditions encountered at the time of harvest versus that described in the Forest Resource Inventory is one of the reasons noted for the use of an alternative acceptable FTG standard. Another commonly cited reason was that the management unit had completed an assessment of older harvested or naturally disturbed areas in which the prescribed FTG standard was unknown or for which the standards had changed considerably in the intervening time. A number of management units assessed extensive areas of older natural disturbance for which less information related to the actual depleted stand exists and for which information related to the prescribed treatments is unknown.

On a province-wide basis, the percentage of assessed area that was declared FTG to the prescribed standard ("silviculture success") is considerably lower in the last two years (Figure

5g). However, the percent of assessed areas that are approved to either the prescribed standard or an acceptable alternative ("regeneration success") has remained relatively stable over the five year period, varying from eighty-four to ninety-percent.

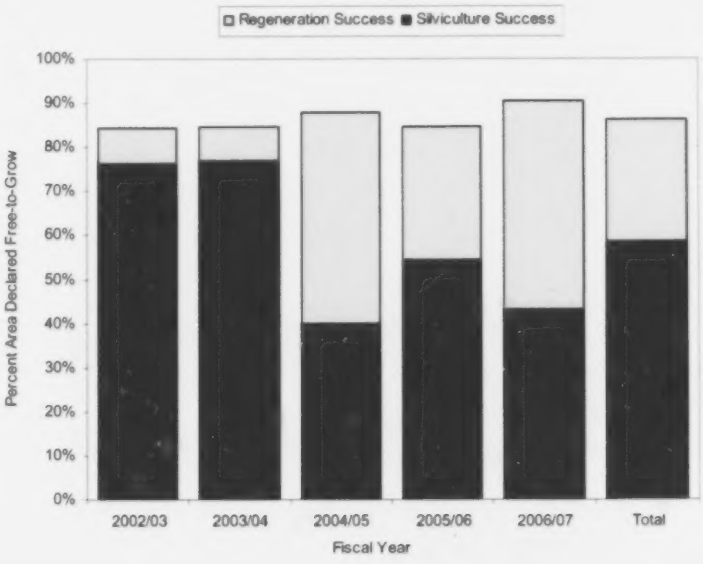


Figure 5g - Percent assessed area declared free-to-grow

In 2006/07, 83% of the eligible management units actually reported regeneration results (Figure 5h). These results varied by region, 100% of the management units in Southern Region reported, while 70% and 91% of management units in Northwest and Northeast regions reported. These results may be influenced to some degree by the approach to surveys taken by local forest managers, some prefer to conduct their surveys annually, while others prefer to accumulate larger blocks that they assess once every few years.

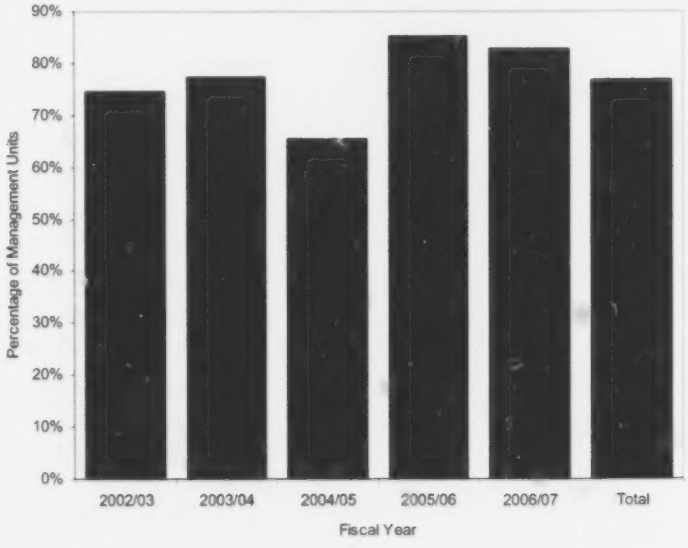
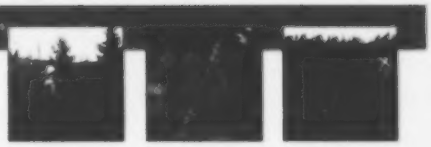


Figure 5h - Percent management units reporting FTG results



Regenerating areas being reported in 2006/07 were harvested and treated a number of years ago (typically 5 – 15 years). However, in response to independent forest audit recommendations and inventory updating processes, a number of management units are continuing to assess backlogged areas which may be considerably older (for example 30 years and older). These older areas are not representative of current practices. Those treated prior to April 1, 1995 occurred before the implementation of the CFSA and the associated Forest Renewal Trust and Forestry Futures Trust Funds. Support from the Forestry Futures Trust and the Forest Renewal Trust Funds provide the funding for forest managers to ensure that harvested areas have the necessary treatments to achieve successful renewal. Assessed areas include both harvested and naturally depleted stands. All harvested areas must be renewed successfully. Forest managers may apply for funding from the Forestry Futures Trust Fund to treat naturally depleted areas. Some of the areas found not FTG at this time need re-treatment, and others require tending (i.e. to suppress undesirable competing vegetation such as brush and grass). Other areas simply require the passage of more time to allow for the incremental growth necessary to meet the height standard for FTG.

Forest Renewal and Maintenance Funding

The financial mechanisms established under the CFSA, and outlined in Chapter 2, ensure that there is funding available for forest renewal and maintenance. Each SFL holder contributes the appropriate level of renewal charges to an account in the Forest Renewal Trust Fund, which may only be used to conduct eligible silviculture work on the specific licence area from which the monies were generated upon harvest. Forest resource licensees, operating on management units where no SFL exists, pay renewal charges into the Forest Renewal Special Purpose account. This account provides dedicated funding for forest renewal and tending operations. The MNR is responsible for administration of the Forest Renewal Special Purpose Account. As with the Forest Renewal Trust Fund, each management unit has its own separate account to cover forest renewal and tending costs.

Money for a third fund, the Forestry Futures Trust Fund, comes from a portion of the Crown charges that all licensees pay. In addition, any administrative penalties assessed under the CFSA are paid into the Forestry Futures Trust Fund. This account, managed by the Forestry Futures Committee appointed by the Minister of Natural Resources, funds projects that meet MNR-approved criteria. To qualify, projects must be: a silvicultural activity on Crown land that addresses renewal of trees killed or damaged by fire; renewal of land where a licensee becomes insolvent; forest protection from insect or disease infestation; intensive stand management related to a critical wood supply; or, expenditures for Independent Forest Audits, Forest Resource Inventories, or conversion charges.

The annual contributions to the Forestry Futures Trust Fund since 2002/03 are presented in Figure 6i. Total funds deposited to the Forestry Futures Trust Fund in 2006/07 amounted to approximately $13.4 million.

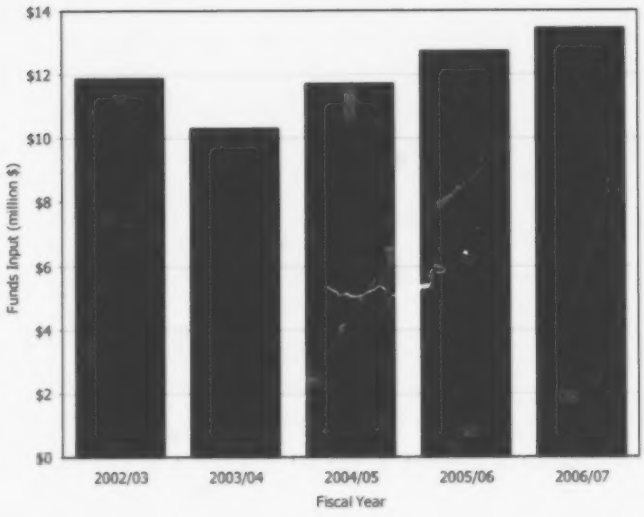


Figure 5i - Forestry Futures Trust Fund contributions

In addition to these trust funds and special purpose accounts, the MNR supports forest renewal through the operation of the Ontario Tree Seed Plant and tree improvement programs.

Total forest renewal and maintenance expenditures in 2006/07 totaled $134.2 million. The source of these expenditures is presented in Table 5b. Note that the combined expenditure for forest renewal under the Forest Renewal Trust Fund plus Special Purpose Account was approximately $20 million more than was paid into these accounts by forest industry in 2006/07 (Table 2f).

Table 5b - Provincial forest renewal expenditures 2006/07

Source	Expenditure (million $)
Forest Renewal Trust Fund	106.9
Forestry Futures trust Fund	26.2
Special Purpose Account	0.9
Direct MNR Expenditures	0.2
Total Renewal Expenditures	**134.2**

In 2006/07, some adjustments to renewal rates occurred on individual management units to reflect the local costs of renewing and tending various species and to reduce specific accumulated surpluses in individual Renewal Trust Fund accounts. These rates will continue to be reviewed and adjusted annually to ensure that adequate levels of funding are maintained. A complete listing of the 2006/07 renewal rates for each management unit is provided in Appendix 5.

Forest Maintenance

Tending

Tending includes the operations of weeding, cleaning, thinning, spacing, and stand improvement. Forest tending operations are carried out to improve the survival, growth, or quality of a regenerating forest. Tending may be done in young stands to help attain Free-To-Grow status, or conducted in uneven-aged stands to maintain the desired age-class distribution and volume.

TENDING (hectares)	2002/03	2003/04	2004/05	2005/06	2006/07	5 Year Average
Cleaning						
Manual	2,581	3,477	1,181	1,648	991	1,976
Chemical-ground	7,481	4,889	5,007	6,200	3,549	5,425
Chemical-aerial	65,621	67,323	57,604	71,762	66,301	65,722
Mechanical	0	2,496	0	0	0	499
Subtotal Cleaning	**75,683**	**78,186**	**63,791**	**79,610**	**70,841**	**73,622**
Spacing, Precommercial Thinning, Improvement Cutting						
Even-aged	11,693	12,818	11,851	10,567	5,145	10,415
Uneven-aged	9,211	10,248	5,592	8,610	8,735	8,479
Subtotal Spacing, Precommercial Thinning, Improvement Cutting	**20,904**	**23,066**	**17,443**	**19,177**	**13,880**	**18,894**
TOTAL TENDING	**96,587**	**101,252**	**81,235**	**98,786**	**84,721**	**92,516**

Table 5c - Provincial tending operations

Table 5c and Figure 5j summarize the tending activities conducted on Crown land in 2006/07. Reported levels of tending are approximately 14 percent lower than the previous year.

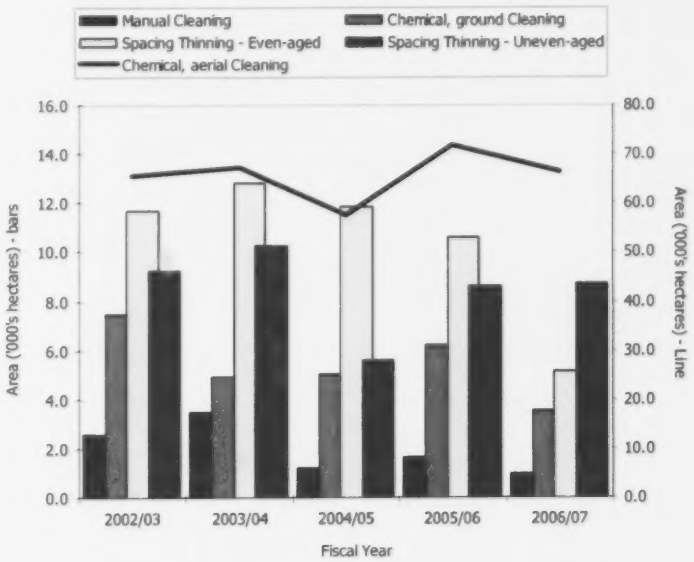


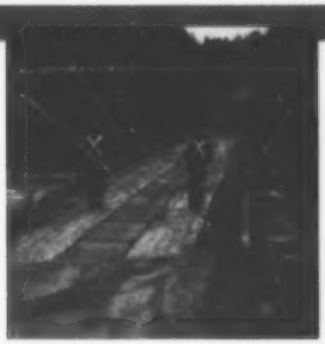
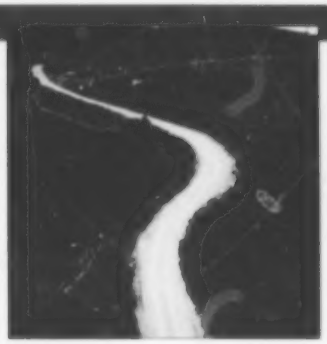
Figure 5j - Provincial tending activities

Protection

Protection operations prevent or manage the damage caused by insects and diseases. In 2006/07, 104,178 hectares were treated with B.t. (Bacillus thuringiensis, a naturally occurring bacterium) to control an outbreak of jack pine budworm.

Figure 5k - Spraying B.t. in the Kenora area to control jack pine budworm

Forest Access Roads

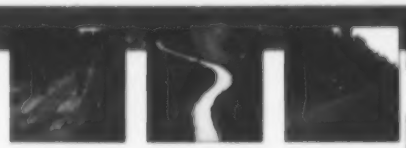




This chapter provides information on the construction, maintenance and monitoring of all forest access roads. The chapter includes details on the level of maintenance activities, including grading, snow plowing, re-alignments, flood repairs, bridge repairs, and any other activity necessary to maintain existing roads. It also includes information on access controls established on forest roads, the decommissioning of forest roads, the monitoring of forest access roads for erosion and the washout of water crossings, and government funding programs for forest roads. In previous years the Annual Report on Forest Management only reported primary and secondary (branch) road construction and use management; however, in this year's report operational road construction and use management have been included for the first time.

The 2006/07 Roads Funding Program

The *Minister's Council Report on Forest Sector Competitiveness*, released in June 2005, recommended that the provincial government assume its proportional share of the costs of building and maintaining forest access roads on Crown forests that serve multi-resource uses. The report recommended that the government's share cover 100% of primary road costs, and 50% of secondary road costs. As a result, in September 2005 the Minister of Natural Resources announced the Road Maintenance Funding Program, with $28.0 million available to the forest industry to cover the costs of maintaining primary forest access roads. In February 2006 the Premier and the Minister of Natural Resources announced an additional $47.0 million of funding for the Roads Funding Program. Beginning April 1, 2006, a total of $75.0 million was made available annually to contribute to the expenses incurred by the forest industry to construct and maintain forest access roads.

Roads eligible for funding have to be identified as primary or branch forest access roads in approved Forest Management Plans and Annual Work Schedules, be located on Crown land, and not be limited to use only by the forest industry. These funded forest access roads benefit



not only the forest industry, but also many other users, including; mining companies, tourism operators, Aboriginal communities, utility and railway companies, hunters, anglers, campers, trappers, cottagers, and the general public. These roads also provide part of the rural infrastructure for emergency preparedness and response.

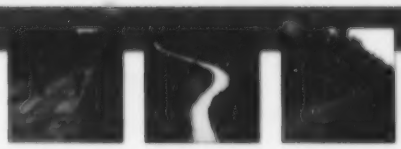
In 2006/07 the MNR entered into 51 Road Construction and Maintenance Agreements with Sustainable Forest Licence holders/Forest Resource Licence holders on 46 Management Units (including the Algonquin Forest Authority). The agreement holders were required to submit invoices identifying completed eligible road work, which was then verified by MNR prior to the reimbursement of road funding.

The forest industry incurred costs of $88.8 million on the construction, re-construction, maintenance, and monitoring of over 22,000 km of primary and branch roads, and the repair/replacement of over 800 stream crossings. The government's share of this work was just under $75.0 million. The forest industry incurred 100% of the costs of constructing and maintaining all operational roads on Crown lands.

The MNR utilized less than one per cent of the available funds for the administration of the roads program.

2006/07 Roads Funding Program

		Total Road Program Reimbursement		
Region	Management Unit	Primary Roads	Branch Roads	Total
NE	Algoma Forest	$1,116,282	$0	$1,116,282
NE	Big Pic Forest	$1,879,669	$329,590	$2,209,258
NE	Black River Forest	$438,451	$36,378	$474,828
NE	Cochrane Moose River CMU	$710,200	$31,629	$741,829
NE	Gordon Cosens Forest	$4,170,156	$230,362	$4,400,518
NE	Hearst Forest	$1,739,726	$325,149	$2,064,876
NE	Iroquois Falls Forest	$1,634,728	$783,437	$2,418,165
NE	Magpie Forest	$454,092	$272,148	$726,240
NE	Martel Forest	$2,085,535	$125,162	$2,210,697
NE	Nagagami Forest	$1,078,925	$212,021	$1,290,946
NE	Nighthawk Forest	$1,000,261	$2,820	$1,003,081
NE	Nipissing Forest	$1,281,861	$27,661	$1,309,522
NE	Northshore Forest	$1,482,597	$230,483	$1,713,080
NE	Pineland Forest	$1,199,766	$2,426	$1,202,192
NE	Romeo Malette Forest	$1,187,959	$96,792	$1,284,751
NE	Smooth Rock Falls Forest	$286,974	$187,671	$474,645
NE	Spanish Forest	$3,395,964	$4,664	$3,400,628
NE	Sudbury Forest	$907,395	$0	$907,395
NE	Temagami CMU	$485,080	$0	$485,080
NE	Timiskaming Forest	$3,658,398	$151,603	$3,810,001
NE	White River Forest	$2,164,658	$0	$2,164,658



2006/07 Roads Funding Program *(continued)*

Region	Management Unit	Total Road Program Reimbursement		
		Primary Roads	Branch Roads	Total
NW	Armstrong Forest	$986,787	$317,716	$1,304,502
NW	Black Sturgeon Forest	$316,915	$561,131	$878,046
NW	Caribou Forest	$1,241,198	$375,459	$1,616,657
NW	Crossroute Forest	$2,534,744	$855,421	$3,390,164
NW	Dog River - Matawin Forest	$1,559,452	$759,310	$2,318,762
NW	Dryden Forest	$532,541	$16,751	$549,292
NW	English River Forest	$1,281,871	$461,098	$1,742,969
NW	Kenogami Forest	$3,715,988	$128,568	$3,844,556
NW	Kenora Forest	$612,962	$117,685	$730,647
NW	Lac Seul Forest	$1,939,453	$349,451	$2,288,904
NW	Lake Nipigon Forest	$1,365,931	$346,329	$1,712,260
NW	Lakehead Forest	$1,104,968	$20,643	$1,125,611
NW	Ogoki Forest	$2,360,234	$68,400	$2,428,635
NW	Pic River Ojibway Forest	$43,143	$264,095	$307,237
NW	Red Lake Forest	$560,416	$0	$560,416
NW	Sapawe Forest	$760,838	$655	$761,493
NW	Spruce River	$1,522,429	$379,387	$1,901,817
NW	Trout Lake Forest	$2,754,814	$212,230	$2,967,044
NW	Wabigoon Forest	$2,588,993	$256,708	$2,845,701
NW	Whiskey Jack Forest	$1,348,820	$342,898	$1,691,718
SR	Algonquin Park Forest	$1,316,987	$413,457	$1,730,444
SR	Bancroft-Minden Forest	$353,373	$147,445	$500,817
SR	French/Severn Forest	$460,859	$104,840	$565,699
SR	Mazinaw-Lanark Forest	$259,974	$42,369	$302,343
SR	Ottawa Valley Forest	$681,976	$186,067	$868,043
	Total	**$64,564,342**	**$9,778,108**	**$74,342,450**
			MNR Admin costs	$657,550
			Total Funds Spent	**$75,000,000**

Table 6a - 2006/07 Roads funding program

The Forest Access Capital Roads Program

The 2006/07 Forest Access Capital Roads Program, funded by the MNR and the Ministry of Northern Development and Mines, invested $3.7 million in the reconstruction and maintenance of forest access roads on Crown land in Ontario. These funded access roads are the responsibility/liability of the Crown to maintain as multipurpose roads. Most of the road work funded by the two ministries serves several purposes, including public access, public safety and forest management.

Road Construction, Maintenance and Monitoring

In 2004/05 a new Forest Management Planning Manual (FMPM) came into effect, resulting in changes to the annual report table that reports on road construction and use management (table AR-10). In the 1996 Forest Management Planning Manual it was required to report only on primary and secondary (branch) roads. In the 2004 FMPM the requirement to report on operational roads was included; however, road length was no longer reported in table AR-10, and road class reporting wasn't required for existing roads.

Starting in 2004/05 spatial data submitted as part of the management unit annual reports has been used to report on road construction, maintenance and monitoring activities. Prior to 2004/05 data from annual report tables (AR-10) was used.

Figure 6a illustrates primary and branch road construction completed in each fiscal year, for a five year period from 2002/03 through 2006/07. Primary and branch road construction totaled 561 kilometres in 2006/07.

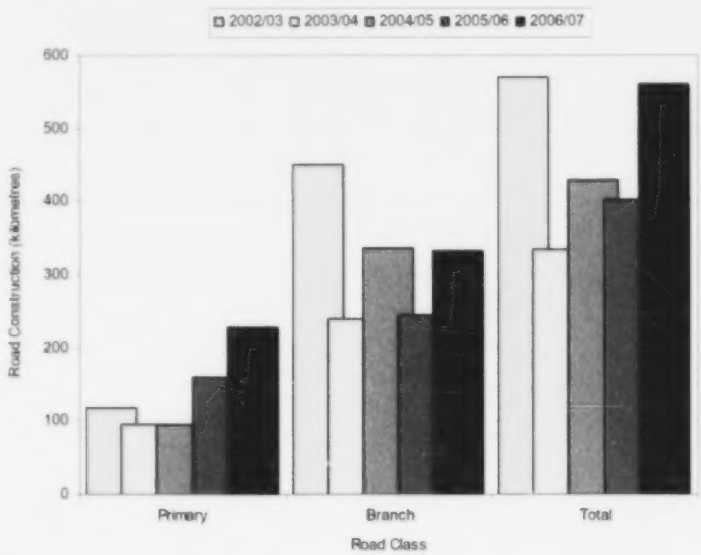


Figure 6a - Primary and branch road construction

Table 6b shows the total kilometres of new road construction completed in 2006/07, including operational roads.

Table 6c illustrates the total number of kilometres of primary, branch and operational roads maintained in 2005/06 and 2006/07. In 2006/07 road maintenance efforts totaled 20,917 kilometres. In addition, 1,911 kilometres of road were monitored for erosion, washouts and damage to access controls. Trend information for road maintenance and monitoring activities prior to 2005/06 is unavailable because of changed reporting requirements in the 2004 FMPM

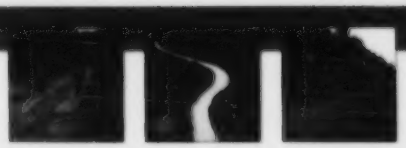


Table 6b - Kilometres of road construction

Road Class	MNR Region Northwest	Northeast	Southern	Total
Primary	104	124	0	229
Branch	180	143	9	332
Operational	2,718	2,508	256	5,482
Total	**3,002**	**2,776**	**265**	**6,043**

Table 6c - Road maintenance by road class

Road Type	2005/06	2006/07
Primary	10,200	10,749
Branch	4,621	3,444
Operational and Existing	6,033	6,724
Total	**20,855**	**20,917**

Road Access Control and Decommissioning

For reasons of public safety and/or resource management, forest access roads may be closed to certain uses on a temporary, seasonal, or permanent basis. Methods used to control or limit access can be classified into two categories: erecting signs to advise the public of the restriction (referred to as signage); or, installing gates or using other physical means such as ditching (referred to as gated or physical barrier). Decommissioning of roads may be accomplished by physical means (ditching, culvert or bridge removal, berming and scarification), or roads may be left to deteriorate naturally. Operational roads may be constructed and decommissioned in the same year. Road access control and decommissioning must be planned in advance of construction, and documented in the FMPM for each management unit. These activities must also be reported in the management unit annual report.

Starting in 2004/05, spatial data submitted as part of the management unit annual reports has been used to report on the level of road access controls and decommissioning. Prior to 2004/05 data from annual report tables (AR-10) was used.

Table 6d illustrates the number of kilometres of primary, branch and operational roads where access controls were established in 2006/07. Table 6e illustrates the number of kilometres of primary, branch and operational roads decommissioned in 2006/07 by natural or physical means.

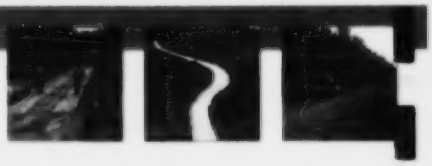


Table 6d - Kilometres of road access controls established, 2006/07

Access Control Type	MNR Region			
	Northwest	Northeast	Southern	Total
Signed	458	1,164	3	1,625
Gate/Barrier	84	177	8	269
Other	63	134	2	199
Total	**605**	**1,475**	**12**	**2,093**

Table 6e - Kilometres of roads decommissioned, 2006/07

	MNR Region			
	Northwest	Northeast	Southern	Total
Physical	81	111	10	202
Natural	214	595	7	815
Total	**295**	**705**	**16**	**1,017**

Primary roads are roads that provide principal access for the management unit, and are constructed, maintained and used as the main road system on the management unit. Primary roads are normally permanent roads, although there may be significant periods of time when specific primary roads are not required for forest management purposes.

Branch roads are roads that branch off existing or new primary or branch roads, providing access to and through areas of operations on a management unit. Whenever a new road is required to provide access to, through, or between, separate areas of operations, the road will be classified as a branch road.

Operational roads are roads within areas of operations that provide short-term access for harvest, renewal and tending operations. Operational roads are normally not maintained after they are no longer required for forest management purposes, and are often site prepared and regenerated.

Source: FMPM 2004

Table 6d - Kilometres of road access controls established, 2006/07

Access Control Type	MNR Region			
	Northwest	Northeast	Southern	Total
Signed	458	1,164	3	1,625
Gate/Barrier	84	177	8	269
Other	63	134	2	199
Total	**605**	**1,475**	**12**	**2,093**

Table 6e - Kilometres of roads decommissioned, 2006/07

	MNR Region			
	Northwest	Northeast	Southern	Total
Physical	81	111	10	202
Natural	214	595	7	815
Total	**295**	**705**	**16**	**1,017**

Primary roads are roads that provide principal access for the management unit, and are constructed, maintained and used as the main road system on the management unit. Primary roads are normally permanent roads, although there may be significant periods of time when specific primary roads are not required for forest management purposes.

Branch roads are roads that branch off existing or new primary or branch roads, providing access to and through areas of operations on a management unit. Whenever a new road is required to provide access to, through, or between, separate areas of operations, the road will be classified as a branch road.

Operational roads are roads within areas of operations that provide short-term access for harvest, renewal and tending operations. Operational roads are normally not maintained after they are no longer required for forest management purposes, and are often site prepared and regenerated.

Source: FMPM 2004

Compliance Monitoring

The forest operations compliance monitoring system in Ontario is designed to ensure the MNR and the forest industry conduct forest operations in compliance with legislation and in accordance with approved plans (e.g. Forest Management, Compliance) and the operational standards found within these plans.

MNR's regulatory role is one of monitoring/auditing and conducting "spot-checks" of industry activity, verification of non-compliance, investigation and enforcement. The Sustainable Forest Licencees (SFLs) have lead responsibility for conducting a comprehensive forest operations compliance program as a condition of their licence. This program includes planning, monitoring, inspecting, reporting, training and education. The forest industry (i.e., SFLs), as part of "industry self-monitoring and reporting", is required to report all suspected incidents of non-compliance on their management unit to the MNR. This includes infractions incurred by the SFLs, overlapping licensees, contractors and any private individual who contravenes the *Crown Forest Sustainability Act* (CFSA). Infractions incurred by private individuals are not recorded against the SFLs and are deemed as "non SFL related". In 2006/07 the MNR completed 67 non SFL related inspections. These inspections resulted in 13 non-compliant reports with most being minor in nature. On the few management units where the MNR still conducts forest operations, the MNR remains directly responsible for delivering all aspects of the compliance program.

As identified above, part of MNR's regulatory role with respect to forest operations compliance includes the verification of all instances of suspected non-compliance as reported by companies. For incidents assessed as moderate or significant, the MNR actively monitors the non-compliance until it is resolved. In addition, the MNR undertakes random and planned spot-checks and audits of forest operations. The focus of these inspections is typically on those operations having the greatest potential for impact on the environment and ecology of the forest, and on activities that have shown past, present or anticipated future compliance problems.

Results of both industry and MNR compliance inspections are summarized in Table 7a. The rate of forest operations compliance for the past three years has remained relatively constant. The forest sector reported compliance rate for 2006/07 is 96%. The 4% rate of non-compliance relates primarily to minor infractions, and can be considered reasonable given the magnitude of inspections and total area under operations across all management units.

Figure 7a - Compliance inspection on a harvest block

At the management unit level, compliance inspection reports are prepared for the activities of access, harvest, renewal, and maintenance. These reports help managers focus on activities that may require immediate attention. They also supply a database for identifying provincial trends, and provide feedback for compliance program adjustment. The Forest Operations Information Program (FOIP; 2004) is the system used for recording compliance inspections. This web based application provides a consistent approach to all forest compliance inspectors for reporting inspections. Its use is mandatory for reporting on all forest operations inspections conducted on Crown land. With the implementation of FOIP, MNR verifications of industry identified non-compliances are tracked as part of the initial industry inspection report. As well, non-compliances are now calculated by individual compliance issues rather than individual reports as done prior to FOIP. This is described in text further below. The SFL also has the ability to complete audits on their overlapping licensee's inspections and record their findings on the original inspection.

OPERATION TYPE	INDUSTRY Total # Reports	Total # Compliant Reports	Non Compliant Reports	MNR Audits, Spot Checks	Total # Compliant Reports	Non Compliant Reports	SIGNIFICANCE OF COMPLIANCE ISSUES Minor	Moderate	Significant
Access	1,209	1,161	48	365	297	68	100	23	2
Harvest	3,068	2,956	112	713	629	84	159	39	4
Renewal	375	360	15	89	83	6	15	3	-
Maintenance	128	124	4	21	19	2	5	1	-
2006/07 Total	**4780**	**4601**	**179**	**1188**	**1028**	**160**	**279**	**66**	**6**
2005/06	5,500	5,293	207	1,264	1,104	160	321	54	2
2004/05	6,500	6,263	237	1,569	1,309	260	399	109	6

PREVIOUS YEARS TOTALS	Total # Reports	Total # Compliant Reports	Total # Non Compliant Reports	Total # Audits, Spot Checks	Total # Compliant Reports	Total # Non Compliant Reports	SIGNIFICANCE OF INSPECTION REPORTS Minor	Moderate	Significant
2003/04	6,888	6,565	323	2,216	1,809	407	331	66	10
2002/03	7,455	7,074	381	1,856	1,469	387	298	68	21

Source: 2006/07 data taken from FOIP (Forest Operations Information Program) as of June 20, 2008
Source: 2002/03 – 2005/06 data taken from 2005/06 Annual Report on Forest Management

Table 7a - Forest operations compliance inspection reports summary 2006/07

This reduces the unnecessary effort of producing multiple reports for the same event. FOIP allows the ability to update the status of existing Industry reports on an operation from Suspended to Completed once the operation has ended, again eliminating multiple reports for the same operation. The reduced number of industry inspection reports as indicated in Table 7a is partially due to these changes in reporting requirements. It can also be attributed to an increased awareness by both parties of legal requirements and approval processes. As well, the initiation of management unit consolidations and a decline in the overall area harvested due to economic challenges faced by the forest industry have contributed to the reduction in number of reports over recent years.

It should be noted that compliance issue numbers may not be directly comparable to numbers of non compliant reports. One compliance issue may be initiated for several non-compliances or several compliance issues may be identified in one non-compliance report. As shown in Table 7a, previous years' non-compliances were counted by number of reports. With the implementation of FOIP in 2004, changes were made to assess compliance issues and noncompliant reports as separate items, with non-compliances now being counted per compliance issue.

All MNR and forest industry forest compliance inspectors must be certified. This certification was initiated to ensure the skills and competencies in compliance assessment and reporting. To maintain this certification, inspectors stay active by providing a minimum of five inspection reports per year and are required to be recertified. The period between

recertifications was extended from three to five years in 2007. Recertification also incorporates updates on current forest practices. In 2006/07 certification activities resulted in 41 new inspectors certified and 68 recertified. Since 2001, a total of 388 inspectors have been certified and remain active into 2006/07.

Actions Taken

In the self-monitoring and reporting compliance partnership model, industry must report all suspected non-compliance situations, and the MNR verifies, assesses the significance, and determines the appropriate remedy and enforcement action.

In many instances of minor non-compliance, immediate corrective action is undertaken and enforcement measures are not warranted. The earlier an operational problem is identified and responded to, the more likely the impacts can be avoided, minimized or mitigated. In 2006/07 twenty one (21) industry identified concerns were verified by MNR as not being issues for achieving operational compliance.

CFSA remedy and enforcement provisions apply largely to licensees of the Crown, but any person who contravenes the CFSA may be subject to its remedies. The scale, scope and intensity of an infraction would largely determine the classification of the non-compliance from a minor to moderate or significant. Any remedy and enforcement measure applied will be unique to and reflect the circumstances and nature of the infraction and the offender. The numbers and values of remedies and enforcement actions shown in Table 7b may include persons who did not hold a forest resource licence and were subject to remedies under the Act.

Although all incidents of non-compliance are reported in the fiscal year in which they occurred, a number of cases are ongoing (e.g.: under investigation or subject to court action) and will be recorded in FOIP when resolved.

Method	Number	Value
Administrative Penalty [a]	35	$82,556[c]
Offence Charge [b]	8	$72,250
Stop Work Order	2	n/a
Repair Order	4	n/a
Compliance Order	8	n/a
Warnings	96	n/a
Corrective Action	138	n/a
Total Actions Taken 2006/07	**291**	**$154,806**
Total Actions Taken 2005/06	324	$101,744
Total Actions Taken 2004/05	454	$108,880
Total Actions Taken 2003/04	56	$213,151
Total Actions Taken 2002/01	177	$190,212

Table 7b - Remedy and enforcement actions taken 2006/07

[a] To Forestry Futures Trust Fund
[b] To Consolidated Revenue Fund (general revenue)
[c] Receipt of payment for one Administrative Penalty currently outstanding
Sources: FOIP (Forest Operations Information Program), June 20/08
OTAR (Ontario Timber Accounts Receivable) and CAVRS
(Compliance Activity Violations Reporting System), July 14, 2008.

Independent Forest Audits

Independent Forest Audits (IFAs) are a requirement of the *Crown Forest Sustainability Act* (CFSA) and Ontario Regulation 160/04, Condition 28 of the MNR's *Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario* (2003), and are a condition of all Sustainable Forest Licences (SFLs). All management units are audited at least once every five years to review operations and to examine forest management activities carried out over the previous five years.

An independent forest audit (IFA) is a systematic and documented verification process to assess adherence to the forest management plan and to the planning process. Assessing the interpretation and application of provincial legislation, manuals, policies, and guidelines at the management unit level is also part of the audit. Auditors examine the effectiveness in achieving the planned objectives and provide an assessment of forest sustainability for the management unit. Audit teams also review licensee compliance with the obligations of their specific SFL.

In order to fully address the audit purpose and objectives, an audit process and protocol document sets out the forest management principles, criteria, and procedures for undertaking IFAs. The audit protocol identifies eight guiding principles: commitment; public participation; forest management planning; Forest Management Plan (FMP) implementation; systems support; monitoring; achievement of management objectives and forest sustainability; and, contractual obligations. For each principle, a series of specific criteria have been identified that, when met, will result in achievement of the principle.

The audit terms of reference are the same for all IFAs. This includes the audit team personnel requirements. All members of an audit team must have a minimum of seven years recent and relevant experience in forest types similar to those being audited. They must be independent of the operations they audit, as well as free from conflict of interest throughout the process.

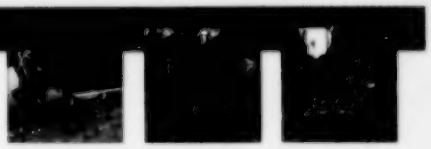
The audit team must include a Registered Professional Forester. For the 2006 audits, the audit team was required to provide an audit against the requirements that were in effect during the audit period, and prepare a subsequent report for publication.

Figure 8a - Auditors inspecting selection harvest on the 2006 Algoma Forest audit

Action plans must be developed in response to each audit report. The SFL holder and the applicable MNR district jointly develop the action plan. A status report on the action plan is required two years after its approval, to ensure that progress is occurring as specified in the plan. All IFA reports are tabled in the legislature and available on MNR's web site.

2006 Independent Forest Audit Summary

IFAs in 2006 were completed on fifteen management units. Fourteen of the management units were managed via SFLs throughout the five-year audit period. One management unit was managed by the Crown during the period. External consultants, independent of the licensees and the MNR, carried out the audits. Table 8a provides a complete listing of the 2006 audit reports by forest licence holder and independent auditor.



Report/Forest(s)	Licensee/Forest Manager	Independent Auditor
Algoma Forest	Clerque Forest Management Inc.	KBM Forestry Consultants Inc.
Armstrong Forest	Norampac Inc.	KBM Forestry Consultants Inc.
Bancroft Minden Forest	Bancroft Minden Forest Management Company Inc.	ArborVitae Environmental Services Ltd.
Black River Forest	Great West Timber Ltd.	David Barker & Associates Ltd.
Black Sturgeon Forest	Bowater Canadian Forest Products Inc.	BioForest Technologies Inc.
French-Severn Forest	Westwind Forest Stewardship Inc.	ArborVitae Environmental Services Ltd.
Lac Seul Forest	McKenzie Forest Products Inc.	Arbex Forest Resource Consultants Ltd.
Lake Nipigon Forest	Norampac Inc.	KBM Forestry Consultants Inc.
Magpie Forest	Dubreuil Forest Products Ltd.	Arbex Forest Resource Consultants Ltd.
Nipissing Forest	Nipissing Forest Resource Management Inc.	ArborVitae Environmental Services Ltd.
Pic River Ojibway Forest	Great West Timber Ltd.	KBM Forestry Consultants Inc.
ShiningTree Forest	Timiskaming Forest Alliance Inc.	ArborVitae Environmental Services Ltd.
Spruce River Forest	Abitibi Consolidated Company of Canada	BioForest Technologies Inc.
Sudbury Forest	Vermillion Forest Management Company Ltd.	KBM Forestry Consultants Inc.
Temagami	Ministry of Natural Resources	Arbex Forest Resource Consultants Ltd.

Table 8a - 2006 Independent Forest Audits

All 2006 audit reports (except the Pic River Ojibway Forest) concluded that, during the term of the audit, the forests were being managed in general compliance with legislation and policy, with licence requirements, and with the principles of sustainable forest management (Table 8b).

Table 8b - 2006 Independent Forest Audit results

Management Unit	In Compliance[1]	Sustainably Managed	SFL Extension Recommended[2]
Algoma Forest	Yes	Yes	Yes
Armstrong Forest	Yes	Yes	Yes
Bancroft Minden Forest	Yes	Yes	Yes
Black River Forest	Yes	Yes	Yes
Black Sturgeon Forest	Yes	Yes	Yes
French-Severn Forest	Yes	Yes	Yes
Lac Seul Forest	Yes	Yes	Yes
Lake Nipigon Forest	Yes	Yes	Yes
Magpie Forest	Yes	Yes	Yes
Nipissing Forest	Yes	Yes	Yes
Pic River Ojibway Forest	Yes	Yes	Conditional[3]
ShiningTree Forest	Yes	Yes	N/A[4]
Spruce River Forest	Yes	Yes	Yes
Sudbury Forest	Yes	Yes	Yes
Temagami	Yes	Yes	N/A[5]

[1] Managed in overall compliance with legislative and policy requirements in effect during the audit period

[2] This column is only applicable to management units managed under a Sustainable Forest Licence

[3] A conditional recommendation for SFL extension was deferred until 2010, by which time Great West Timber Ltd. needs to resolve five "crucial" issues

[4] The ShiningTree Forest has been amalgamated into the Timiskaming Forest, therefore no SFL recommendation was made. The audit team noted however, that the results of this audit were generally positive and under normal circumstances would have led to a recommendation to extend the licence.

[5] The Temagami management unit is managed by the Crown and is therefore not eligible for extension of a sustainable forest licence.

The Pic River Ojibway Forest audit concluded that "the growing forest and the habitat it provides, are meeting standards of sustainability"; however, the audit team identified five "crucial" recommendations that, if not addressed, "will raise very serious concerns about the Forest's sustainability."

Twelve of the audit reports recommended that the sustainable forest licence be extended for a further five-year term. The ShiningTree Forest has been amalgamated into the Timiskaming Forest, therefore no SFL extension recommendation was made. The audit team noted however, that the results of this audit were generally positive and under normal circumstances would have led to a recommendation to extend the licence. The audit report for the Pic River Ojibway Forest recommended that the Minister defer the licence extension until 2010 at which time it will be possible to verify satisfactory progress on the five "crucial" recommendations. The Temagami management unit is managed by the Crown and is therefore not eligible for extension of a sustainable forest licence.

Individual Audit Summaries

The Algoma Forest audit report identified 17 recommendations for improvement.

Eight recommendations were made under the forest management planning principle. Three are related to the collection, provision and use of values data, including the funding of data collection by the MNR, the timely provision of values data by the MNR, and the identification and reporting of values by Clergue Forest Management Inc. The remaining recommendations include: determining the effects of management activities on habitat at the eco-regional scale; MNR providing adequate training to plan reviewers and ensuring that the planning team includes appropriate geographical representation and expertise; industry reviewing and updating Area of Concern documentation; and industry identifying aggregate pits in the Annual Work Schedule (AWS).

Four recommendations were made under the plan implementation principle. Three concern MNR and industry utilizing, marketing, and processing underutilized species. The remaining recommendation relates to compliance of aggregate pit permit holders with the Aggregate Resources Act.

Five recommendations were made under the monitoring principle. They relate to improvements in compliance monitoring and planning by MNR and industry, timeliness and accuracy of reporting by MNR and industry, and industry's responsiveness to environmental issues.

The audit report commended Clergue and its partner shareholders for efforts to improve stand quality in low quality stands, and for excellent results observed in blocks harvested using selection and shelterwood systems.

The Armstrong Forest audit report identified 28 recommendations for improvement.

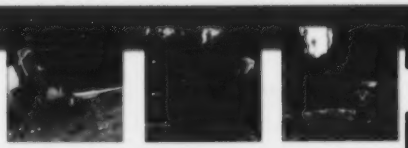
Six recommendations were made under the public participation principle. Two concern MNR providing notices of forest management activities in Aboriginal media. Two relate to the Ministry of Environment adhering to timelines for responding to Individual Environmental Assessment (EA) requests. A further recommendation identifies the need to pursue an outstanding Native Background Information Report, while another recommendation notes that MNR should ensure that the Local Citizens Committee (LCC) reviews and updates its Terms of Reference.

Eight recommendations were made under the Forest Management Planning principle. Two recommendations address MNR providing quality forest values information in a timely manner. Two address Norampac Inc. providing complete text in the FMP. The remaining recommendations consist of MNR including the socio-economic profile of the Namaygoosisagagun aboriginal community in the next FMP, MNR and industry reviewing the local Forest Resources Inventory (FRI), distributing FMP amendments in a timely manner, and corporate MNR undertaking scientific review of the underlying assumptions in its forest management planning modeling tools on a periodic basis.

Seven recommendations were made under the plan implementation principle. The auditors identified two recommendations to address the need for MNR and industry to make improvements in compliance with utilization and tree retention standards, and to resolve an outstanding compliance issue. Two other recommendations concern completing assessments on two specific sites to ensure that the silvicultural treatments are successful. The remaining recommendations include MNR and industry ensuring aggregate pits are decommissioned, industry updating silvicultural prescriptions, and industry dedicating adequate human resources to FMP implementation.

Three recommendations were made under the monitoring principle. Two concern industry's silviculture effectiveness monitoring and reporting program, and the remaining one relates to timely reporting under the Forest Operations Information Program.

Four recommendations were made under the contractual obligations principle. Two concern MNR and industry meeting IFA submission and action plan obligations. The remaining recommendations address corporate MNR's approach to wood supply commitments, and industry's completion of an outstanding Memorandum of Agreement (MOA).



Two best practice commendations were made. The auditors noted that the planning team used a three-tiered management system to reflect the intensity of caribou habitat management, and that MNR, industry and First Nations provided increased employment opportunities for Aboriginal community members.

The Bancroft Minden Forest audit report identified 20 recommendations for improvement.

Three recommendations were made under the public participation principle, including: MNR and the LCC completing revisions to the LCC Terms of Reference; MNR and the LCC holding regular meetings with improved meeting minutes; and, MNR and Bancroft Minden Forest Management Company Inc. publishing notices in First Nations media.

Twelve recommendations were made under the Forest Management Planning principle. Three concern the planning team identifying and explaining objectives, targets and strategies, while two relate to corporate and local MNR managing the use of access roads and trails by off-road users. The remaining recommendations address issues related to MNR reviewing the need for wildlife management plans for deer wintering areas; MNR informing industry when values update submissions are approved; MNR funding values information collection; MNR and industry providing opportunities for representation on the next planning team; and MNR and industry identifying "selection thinning" sites where appropriate.

The only recommendation made under the plan implementation principle indicates that the next planning team needs to define objectives, strategies, and targets for the establishment of mid-tolerant hardwood species.

The sole recommendation listed under the system support principle notes the need for an improvement in the company's record keeping system.

The two recommendations found under the monitoring principle identify the need for improvements in the provision of compliance training, and the development of a more formal approach to silviculture monitoring and reporting.

The sole recommendation located under the contractual obligations principle deals with MNR revising or removing redundant/impractical conditions in the SFL.

The Black River Forest audit report identified 11 recommendations for improvement.

The single recommendation under the public participation principle indicates that MNR should provide adequate and timely funding to the LCC.

Three recommendations were made under the FMP principle. They include the provision of sufficient resources for values collection, and the identification and efficient collection of accurate information for water bodies.

One recommendation was made under the plan implementation principle. It identifies that Great West Timber Ltd. should improve their slash pile removal/burning program.

Four recommendations were made under the monitoring principle. Three are directed at MNR and industry improving the timeliness of Annual Reports and reporting areas of natural renewal annually. The remaining recommendation concerns MNR determining a minimum number of annual compliance inspections and meeting this target.

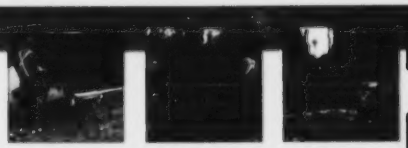
Two recommendations were made under the contractual obligations principle. They deal with industry paying outstanding Crown charges, and industry members entering into an MOA.

One best practice was identified regarding the use of longer skid trails and skidders equipped with high-flotation tires to minimize tertiary road density and site damage.

The Black Sturgeon Forest audit report identified 26 recommendations for improvement.

Five recommendations were made under the public participation principle. Three relate to the membership of the LCC and its terms of reference and focus on the need to create one consolidated LCC with members who have an interest in the forest. One indicates that district MNR shall review whether tending and renewal plans align with First Nations values. The remaining one indicates that corporate MNR should revise EA Condition #34 guidelines to ensure that timber re-allocations consider First Nations economic opportunities.

Four recommendations were made under the forest management planning principle. Three concern corporate MNR's support for values information collection and their subsequent



delivery to planning teams. The fourth one indicates that corporate MNR should ensure that changes to habitat definitions do not affect the ability of the planning team to compare the outcomes for wildlife habitat indicators.

Five recommendations were made under the plan implementation principle. Two recommended that MNR and Bowater Canadian Forest Products Inc. ensure plans and procedures for reducing slash and chipper piles are effectively implemented. The remaining recommendations are directed at MNR and industry improving modeling systems to help meet marten core targets; applying appropriate aerial herbicide buffers; and, industry rectifying problems due to old water crossings.

Seven recommendations were made under the monitoring principle. Four address industry completing annual and five-year reports in accordance with the Forest Management Planning Manual (FMPM). The remaining recommendations include training district staff to use the forest information portal; industry adhering to annual compliance schedules and improving the accuracy of information in compliance activity reports; and, industry re-evaluating their stand stratification methods in Free-To-Grow (FTG) assessments.

Two recommendations were made under the achievement of management objectives and forest sustainability principle. They relate to MNR and industry determining potential markets for non-utilized timber, and industry confirming renewal rates and the condition of timber and habitat in burned areas.

Three recommendations were made under the contractual obligations principle. Two are directed at corporate MNR in relation to deferral of payments to the renewal trust fund by overlapping licensees. The remaining recommendation concerns the need to consolidate administration of the forest to one district and LCC.

Figure 8b - Audit inspection

The French-Severn Forest audit report identified 24 recommendations for improvement.

Four recommendations were made under the public participation principle of the IFA. Three are directed at notification of First Nations and determining their interest in establishing a regular dialogue on forestry opportunities. The other recommendation relates to a protocol for retention of planning documentation.

Twelve recommendations were made under the forest management planning principle. Two concern establishing realistic harvest levels during plan development. The remaining recommendations include:

- the funding of values collection by corporate MNR;
- MNR prioritization of road and water crossing management efforts;
- correcting errors in the current forest management plan documentation;
- developing strategies for the next forest management planning process related to improving the timeliness of responses to public correspondence and utilizing innovative tactics for development of silvicultural strategies;
- retaining and summarizing amendment and revision documentation;

- determining local interpretations for the *Forest Management Guide for Natural Disturbance Pattern Emulation* (NDPEG) for the Great Lakes-St. Lawrence Forest for the next FMP;
- MNR training Westwind Forest Stewardship Inc. staff and operators in deer-yard management; and
- obtaining an updated FRI for the forest.

Five recommendations were made under the plan implementation principle. Three address developing a strategy to deal with anticipated funding shortfalls, MNR providing funding for backlog silviculture, and MNR mitigating negative impacts of deferred payments on the renewal trust fund. The remaining ones concern corporate MNR facilitating more prescribed burning, and to managing the use of access roads and trails by off-road users.

The only recommendation found under the systems support principle indicates that corporate MNR and Westwind should bring overlapping licensees into compliance with health and safety legislation.

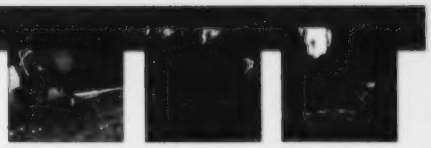
One recommendation was made under the monitoring principle. It focuses on industry documenting the analyses of compliance priorities and meeting content requirements for the inspection schedule in future Annual Compliance Plans.

In relation to the contractual obligations principle, the audit report recommended that Westwind continue to negotiate a MOA with Grant Forest Products.

There were two best practices identified in the IFA; the first recognizes Westwind's commitment to forest management (which had strong MNR support), and the second recognizes Westwind's exceptional public outreach efforts during the development of the 2004 FMP.

The Lac Seul Forest audit report identified 11 recommendations for improvement.

Three recommendations were made under the public participation principle, and include MNR reviewing the membership, structure, and processes of the LCC, and corporate MNR clearly explaining the flexibility that district managers have regarding the LCC. The remaining



recommendation addresses the Ministry of the Environment providing decisions on two outstanding Individual EA requests.

Three recommendations were made under the forest management planning principle, with respect to: corporate MNR reviewing the effectiveness of the Resource Stewardship Agreement process; MNR enhancing its socio-economic information regarding road-based recreation; and, McKenzie Forest Products Inc. consistently reporting areas in FMP tables and the Strategic Forest Management Model (SFMM).

Four recommendations were made under the plan implementation principle. Two are directed at corporate MNR and industry commissioning an independent review of guideline impacts on forests in Northern Ontario, and including more field practitioners in the next review of NDPEG. Two target the MNR determining the most effective means to allocate available red pine to parties who will actually utilize it.

One recommendation was made under the contractual obligations principle. It addresses MNR and industry meeting deadlines for IFA action plans and status reports.

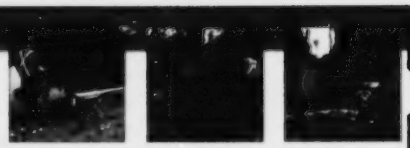
One best practice was noted, relating to industry using scaling data to calibrate yield curves in SFMM.

The Lake Nipigon Forest audit report identifies 26 recommendations for improvement.

The two recommendations made under the public participation principle concern placing forest management planning, aerial herbicide and AWS notices in Aboriginal media.

Ten recommendations were made under the forest management planning principle. Two document the need for Norampac Inc. to provide complete text in the next FMP. Six of the recommendations are directed at MNR, including:

- two related to the distribution of amendments and placement of amendment notices in Aboriginal media;
- informing the public of the status of a proposed road link between Lake Nipigon and Armstrong Forests;



- making the Natural Resources Values Information System information available for FMP and AWS preparation; and
- ensuring the Landscape Guide contains current woodland caribou science.

The remaining recommendations address MNR and industry reviewing plan issues earlier and assigning appropriate resources to deal with issues; appending forest operation prescription changes to AWSs; and ensuring timely approval of the Terms of Reference for the next FMP.

Two recommendations were made under the plan implementation principle, recommending that MNR and industry improve utilization, tree retention, and slash management practices, and ensure that inactive aggregate pits are properly decommissioned.

The sole recommendation made under the systems support principle targets corporate MNR reviewing its priorities and allocations of human resources.

Five recommendations were made under the monitoring principle. Two address MNR and industry meeting inspection reporting timelines, and producing and accepting the year-ten annual report as per the FMPM schedule. The remaining recommendations concern MNR and industry completing silviculture effectiveness monitoring on the unit, and industry determining the adequacy of their program for assessing effectiveness.

The single recommendation made under the achievement of management objectives and forest sustainability principle deals with industry determining the reason for the decline in FTG success over the past 15 years.

Five recommendations were made under the contractual obligations principle. They include MNR reviewing its approach to wood supply commitments; industry completing an outstanding MOA; MNR and industry meeting IFA status report deadlines; MNR and industry completing outstanding action items from the 2001 IFA action plan; and, MNR and industry achieving more equal participation by Pays Plat First Nation in the benefits provided through forest management planning.

There was one best practice identified by the auditors, relating to MNR, industry, and First Nations helping the District Manager to address Condition 34 of the EA Declaration Order.

The Magpie Forest audit report identified seven recommendations for improvement.

Three recommendations were made under the public participation principle. Two document the need for improvements to the Individual EA request process: the first relates to the timeliness of the Ministry of the Environment's decision-making process, while the second recommends that the process be revised to require full participation in the planning process as a prerequisite for requesting an Individual EA. The remaining recommendation is directed at corporate MNR obtaining economic contribution information from the Ministry of Tourism regarding the remote tourism industry.

Two recommendations were made under the plan implementation principle. They concern Dubreuil Forest Products Ltd. increasing the amount of area they annually survey for FTG status, and improving their road-building and water-crossing practices.

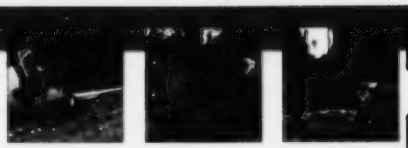
Two recommendations were made under the monitoring principle. They target the district increasing its compliance presence, and the MNR and industry complying with regulations when reporting on compliance in annual reports.

The Nipissing Forest audit report identified 31 recommendations for improvement.

Six recommendations were made under the public participation principle, with four that address enhancing the membership of the LCC and its functionality. Another recommendation deals with corporate MNR providing sufficient resources to document Native values. The remaining recommendation targets improvements to retention of public consultation documentation by MNR and Nipissing Forest Resource Management Inc.

Sixteen recommendations were made under the forest management planning principle. Three target corporate MNR revising wood supply commitment mechanisms and associated licence conditions to provide industrial flexibility to plan realistic harvest levels. A further six recommendations are also directed at corporate MNR and include:

- identifying the role parks can play in meeting old-growth objectives and investigating the degree to which shelterwood managed pine stands function as old growth;
- revising the direction to planning teams regarding modelled wildlife habitat levels in the managed forest relative to the natural benchmark;
- allocating resources to complete the classification of waterbodies;



- ensuring the Landscape Guide contains direction for the Great Lakes-St. Lawrence Forest; and
- eliminating errors in, clarifying responsibility for, and developing an updating procedure for land ownership layers.

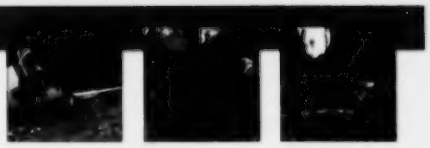
The remaining recommendations include:

- MNR updating the land use direction for Enhanced Management Areas;
- MNR and industry giving consideration to the management of tree species for non-timber values;
- the planning team including an individual with park management expertise;
- MNR and industry adapting residual timber requirements of NDPEG to industry's pine restoration requirements;
- the planning team ensuring draft harvest areas are available early enough in the planning process to allow for spatial habitat assessments and the plan text meets FMPM requirements; and
- industry reducing annual harvest allocations in accordance with forecasted average annual depletion rates.

Three recommendations were made under the plan implementation principle. They include the identification of a corporate MNR funding level for road and water-crossing maintenance; industry using chemical or mechanical site preparation where it would improve regeneration effectiveness; and, industry assessing the need for follow-up treatments on plantations.

Three recommendations were made under the monitoring principle. They address corporate MNR increasing the local compliance budget; MNR responding to industry in regards to an exceptions monitoring program; and MNR completing its annual report review with industry addressing any required revisions.

Three recommendations were made under the licence obligations principle, including: corporate MNR clarifying a wood supply commitment; MNR and industry preparing the IFA action plan on schedule; and, the planning team modeling wood supply based on finalized commitments.



Three best practice commendations were made. They document MNR, Nipissing Forest Resource Management Inc., and First Nations cooperating to support First Nations' interests; industry implementing tolerant hardwood stand improvement projects; and, industry developing a comprehensive silvicultural information system.

The Pic River Ojibway Forest audit report identified 23 recommendations for improvement.

One recommendation was made under the public participation principle, related to the LCC updating its terms of reference and membership.

Six recommendations were made under the forest management planning principle. One recommendation is directed at MNR assessing the FMP review and approval process to ensure that errors and omissions are identified and addressed in the final FMP. The remaining recommendations were directed at Great West Timber Ltd., including:

- providing a complete description of model parameters in the next FMP;
- correcting a table in the current FMP;
- reviewing growth and yield estimates, the FRI, and utilization constraints for the next FMP;
- ensuring the revenues and expenditures forecast table and text are completed correctly for the next FMP; and
- ensuring required alterations are addressed and documented in the next FMP.

Nine recommendations were made under the plan implementation principle. Four are considered "crucial". They relate to:

- MNR evaluating partially harvested blocks for compliance with the FMP and CFSA;
- MNR and industry following the birch strategy outlined in the current FMP;
- industry following the slash management strategy outlined in the current FMP; and
- industry ensuring the effectiveness of silvicultural treatments in achieving the desired future forest condition.

The remaining recommendations address MNR reviewing the effectiveness of independent reviews of the road maintenance agreement through the IFA process; industry reducing future

areas of bypass; industry utilizing marketable timber from roadsides; industry annually reporting natural regeneration; and industry meeting requirements for aggregate pits.

The only recommendation made under the systems support principle identifies the need for industry to implement a management system for its planning and operational documents.

Six recommendations were made under the monitoring principle. One is considered "crucial": that industry identify areas eligible for FTG status, amend the FMP accordingly, and continue the pace of surveys to ensure that they are up to date. One relates to MNR completing its compliance inspections, while two concern MNR and industry reducing recurring compliance issues and resolving compliance issues to bring closure to suspended harvest areas. The remaining recommendations target MNR and industry ensuring that annual reports contain the required information and accurate submission dates, and industry completing harvest operations prior to silviculture operations.

One best practice was identified in relation to the actions of MNR, industry and Pic River Development Corporation in providing opportunities for First Nations participation in forestry operations.

The ShiningTree Forest audit report identified 19 recommendations for improvement.

Seven recommendations, directed at MNR, were made under the Forest Management Planning principle. Three are related to improvements needed in the funding, quality, and verification of values. The need for further development of a process for estimating the thermal regime of waterways is also noted. Another recommendation relates to completing a Memorandum of Understanding for roles and responsibilities dealing with administration of the Timiskaming Forest by multiple districts. The audit report also identifies the need for improvements in the timeliness of MNR review of planning documents.

Five recommendations were made under the plan implementation principle. The audit report identifies the need for Timiskaming Forest Alliance to ensure that site damage is avoided on sensitive sites and that silvicultural prescriptions are properly implemented. The auditors recommended that MNR address deficiencies associated with an abandoned operator's camp. The remaining recommendations relate to MNR and industry determining the number of inadequate water crossings on the landbase, and improving their working relationship.

The sole recommendation made under the systems support principle deals with MNR and industry developing a tracking system for submission, review, and approval of FMP documents.

Four recommendations were made under the monitoring principle. Three are directed at MNR and industry finalizing an annual report and ensuring report submissions are complete and reviewed on schedule. The remaining recommendation relates to MNR increasing its compliance monitoring.

Two recommendations were made under the licence obligations principle. They target the submission of the audit action plan on schedule, and industry analyzing its silvicultural effectiveness monitoring information for the next FMP.

One best practice identified relates to Timiskaming Forest Alliance Inc.'s innovative efforts in estimating watershed thermal regimes and in developing an interpolated watershed calculation approach.

The Spruce River Forest audit report identified ten recommendations for improvement.

The one recommendation listed under the public participation principle relates to corporate MNR revising Condition 34 guidelines to ensure timber re-allocations have regard for First Nations economic opportunities.

Two recommendations were made under the forest management planning principle. They are both directed at MNR and relate to: completing a habitat suitability analysis to achieve FMP objectives; and updating Natural Resources Values Information System to confirm the status of cold-water lakes and streams, and potential trout habitat, prior to starting operations.

Two recommendations were made under the plan implementation principle. They indicate that Abitibi Consolidated Company of Canada should provide operator training in the implementation of the wildlife tree retention requirement of NDPEG, and MNR and industry should ensure pulp truck loads are securely fastened.

Three recommendations were made under the monitoring principle. Two concern industry explaining deviations from FMP and AWS targets in the annual report, and ensuring future annual reports comply with the FMPM. The remaining recommendation relates to industry submitting compliance reports on time.

Two recommendations were made under the contractual obligations principle. They deal with the Crown notifying district MNR and the SFL holder before making changes to an overlapping licensee's payments to the renewal trust fund, and MNR assuming responsibility for deferred trust fund contributions after six months and replenishing the trust fund with interest.

The Sudbury Forest audit report identified 19 recommendations for improvement.

Two recommendations were made under the public participation principle. They address MNR ensuring notices to Aboriginal communities meet the FMPM and are retained on file.

Eight recommendations were made under the forest management planning principle. One is considered to be of a more serious nature: it recommends MNR and Vermillion Forest Management Company Ltd. to address the aging FRI for the next FMP. The remaining recommendations include:

- corporate MNR examining eco-regional habitat implications of management;
- MNR providing adequate resources for values collection;
- industry including red spruce as a species option in Silviculture Ground Rules;
- MNR and industry developing a strategy to sustain hemlock;
- industry including age-class substitution prevention strategies in the 2010-2020 FMP;
- industry abiding by the FMPM when identifying contingency area until further direction is given; and
- MNR ensuring accurate tracking of amendments.

Three recommendations were made under the plan implementation principle, including MNR ensuring aggregate pit permit holders comply with legislation; industry monitoring and treating sites overrun by jewelweed; and, industry ensuring contractors use water bars in steep terrain on ungravelled winter roads upon completion of operations.

Six recommendations were made under the monitoring principle. One recommendation is considered to be of a more serious nature: it recommends that MNR increase utilization of lower quality fibre in the Great Lakes-St. Lawrence Forest. Two relate to MNR and industry meeting FMPM and Forest Information Manual reporting timelines. The remaining recommendations are directed at industry and relate to:

- completing FTG surveys, maintaining proper records and correctly completing associated annual report tables;
- meeting annual report requirements related to exceptions monitoring, planned clearcuts and conclusions; and
- examining long-term implications of under utilization of the available harvest area.

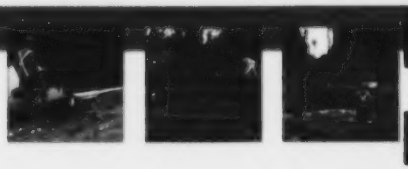
Two best practices were highlighted. MNR and the LCC were commended for using innovative methods to engage the public and interested parties in the planning process, and Vermillion Forest Management Company Ltd. was noted for appending tabular summaries of block compliance inspection priorities to the annual plans of action.

The Temagami Crown Management Unit audit report identified ten recommendations for improvement.

Two recommendations were made under the forest management planning principle. They address MNR and the plan author ensuring FMP tables and SFMM accurately report areas and describe key SFMM inputs in the FMP; and, MNR comparing planned and actual NDPEG implementation, and assessing the contribution of former Area of Concern reserves to NDPEG requirements.

Four recommendations were made under the plan implementation principle. Two relate to MNR conducting pre and post treatment assessments on tending and pre-commercial thinning sites. The remaining recommendations address corporate MNR adopting an efficient cultural heritage site selection process; and MNR investigating and implementing strategies to increase harvesting, including reallocation of the wood supply where it has not been used for an extended period of time.

Three recommendations were made under the monitoring principle. They relate to the completion of annual reports and compliance plans in accordance with requirements.



One recommendation was made under the contractual obligations principle. It indicates that MNR should submit the IFA Action Plan and Status Report on schedule.

One best practice was noted. It commends North Bay MNR for facilitating the development of forestry-tourism agreements when not required to do so.

Summary of 2002-2006 Audit Reports

Table 8c summarizes the audit results from 49 audit reports completed over a 5-year period from 2002 to 2006. During this 5-year period 40 reports indicate that the majority (82%) of management units were managed in accordance with legislative and policy requirements that were in effect during the audit term. A further 4 reports (8%) were generally managed in compliance with legislative and policy requirements; however, in these instances the auditor noted significant exceptions or conditions that required immediate action by the those audited. Five of the reports (10%) reached a wholly negative conclusion with respect to compliance with the requirements.

				Forest Manager			
Audit Year	Audit Reports[4]	In Compliance[1]	In Compliance with Conditions or Significant Exceptions	Crown	Transition	SFL	SFL Extension Recommended[2] (Crown Units not Eligible)
2002	9	6	1	-	3	6[3]	7[5]
2003	6	6	0	-	2	4	6
2004	8	6	2	-	-	8	8[6]
2005	11	8	-	1	-	10	8[7]
2006	15	14	1	1	-	14	13[8]
Total	**49**	**40**	**4**	**2**	**5**	**42**	**42**

[1] *Managed in overall compliance with legislative and policy requirements in effect during the audit period.*

[2] *SFL extension supported where applicable and/or licence obligations met during short term as licence holder.*

[3] *The Agreement with the Algonquin Forest Authority is included in this number.*

[4] *It should be noted that 49 management units currently exceeds the number of management units in the province, the reduction in management units is due to amalgamations that have occurred over time.*

[5] *Two of the 2002 audit reports concluded that sustainability could not be determined due to information deficiencies and recommended shorter SFL terms.*

[6] *Two of the 2004 audit reports concluded that management was not in compliance with all of the legislation and policy requirements and/or that not all of the licence obligations had been met.*

[7] *Three of the 2005 audit reports concluded that management was not in compliance with all of the legislation and policy requirements and/or that not all of the licence obligations had been met.*

[8] *A conditional recommendation for SFL extension was deferred by the auditor until 2010 on the Pic River Ojibway Forest, by which time the SFL holder will need to resolve five "crucial" issues.*

Table 8c - Summary of 2002-2006 audit reports

The independent forest audit program is serving its purpose. Audit reports identify areas for improvement before they begin to have serious consequences. The MNR and SFL holders respond by putting solutions in place, which are documented in mandatory action plans that are developed subsequent to the completion of audit reports.

Future Audit Program

There are nine Independent Forest Audits planned for 2007: Algonquin Park, Crossroute, Hearst, Martel, Nagagami, Northshore, Pineland, Romeo Malette and Sapawe Forests (see Figure 8c). The results of these audits will be published upon completion. All of these forests are being audited for a third time under the Independent Forest Audit Program.

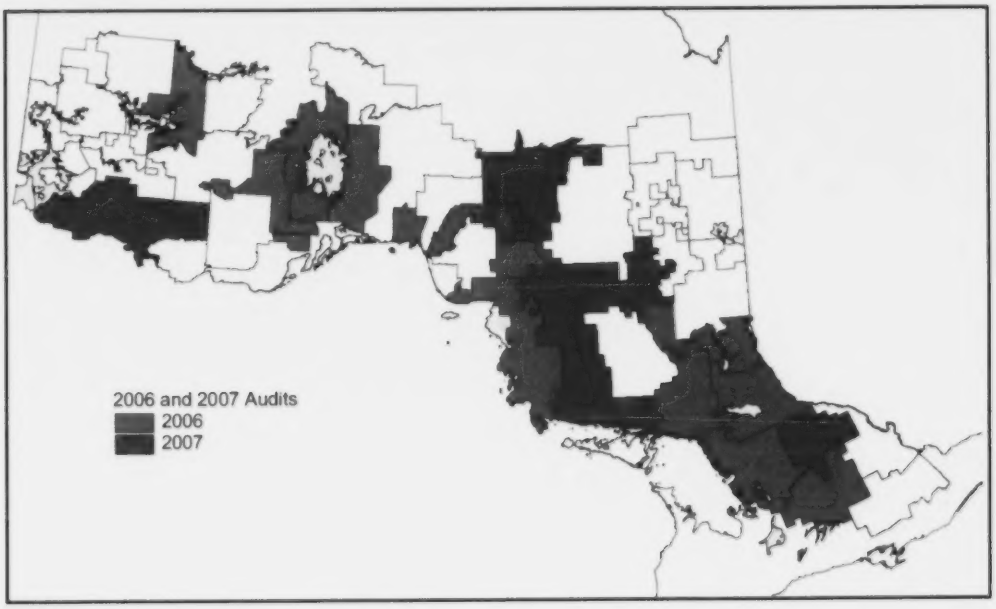
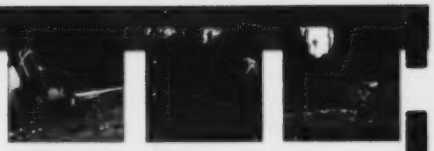


Figure 8c - Management units audited in 2006, and management units scheduled for audit in 2007

Program Review

In 2006 MNR initiated a review of the Independent Forest Audit program as required by Forest Management Class EA Condition 28(c) and the CFSA, Ontario Regulation 160/04. The program was first reviewed in 2001, and again with this second review in 2006. The purpose of these periodic review and revision processes is to ensure the continued efficiency and efficacy of the audit program. The reviews are conducted with public and stakeholder assistance.



An information notice regarding this review was posted on the Environmental Bill of Rights Environmental Registry during the summer of 2006. A proposal and subsequent decision notice related to this review were placed on the environmental registry (Registry number 010-1249) on August 31, 2007 and March 6, 2008, respectively.

The 2006 review was led by an external consultant and concluded that the program continues to be effective. It also noted that changes can be made to make the program more efficient and to improve how quickly the audit reports are made public.

These changes will streamline the Independent Forest Audit process and protocol to ensure that auditors:

- focus on key aspects of forest management
- check the operations of most concern, and
- encourage increased involvement of local citizens and Aboriginal communities.

Most of these changes will be implemented for 2008. The rest will be made over the next few years.

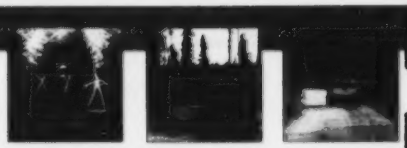
Forest Certification

Forest certification is a market-oriented system which evaluates forest management systems and/or operations in reference to ecological, economic and social standards. In April 2004 the Minister of Natural Resources announced his intention to have all sustainable forest licences certified to an acceptable performance standard by the end of 2007. The certification process requires applicants to demonstrate that they are complying with, or progressing towards, those certification standards. Forest products consumers are assured of an unbiased assessment when forest certification evaluations are implemented by independent third party organizations (called certifiers). Within the limits of its provincial government mandate the MNR provides technical and policy advice, both during the development of certification systems and to forest companies seeking certification of forest lands in Ontario.

There are three forest certification systems accepted by MNR.

- The two standards of the international Forest Stewardship Council (FSC) Principles and Criteria for Forest Management that are applicable to Ontario: FSC Standards for Well Managed Forests in the Great Lakes-St. Lawrence Forests of Ontario and Quebec (draft); and, the National Boreal Standard
- The Canadian Standards Association (CSA) Sustainable Forest Management Standard, approved by the Standards Council of Canada; and
- The Sustainable Forestry Initiative Inc.'s, Sustainable Forestry Initiative (SFI) program.

Many companies, as a first step toward forest certification, have registered their environmental management systems to the International Organization for Standardization Environmental Management System (ISO) 14001.



During the 2006/07 fiscal year an additional three forest management units achieved forest certification, 2 to the FSC certification standard and 1 to the SFI standard. Table 9a summarizes the forests that were certified in 2006/07 and the associated standard:

Management Unit	Sustainable Forest Licence Holder	Certification Standard
Spanish Forest	Domtar Inc.	FSC
Sudbury Forest	The Vermillion Forest Management Company Ltd.	FSC
Ogoki	Long Lake Forest Products Inc.	SFI

Table 9a - Summary of management units achieving certification in 2006/07

In addition, during the fiscal year all previously registered/certified management units continued efforts to demonstrate ongoing conformance to their selected certification systems. It is anticipated that additional management units will become certified in the near future.

As of March 31, 2007, Ontario has 25 management units certified. Table 9b lists these 25 management units, the certification standard attained and the certification date of registration. Figure 9a illustrates the location of these certified management units.

Management Unit	Sustainable Forest Licence Holder	Certification Standard (Registration date)
Crossroute Forest	Abitibi-Consolidated Company of Canada	CSA (Dec 2002)
Spruce River Forest	Abitibi-Consolidated Company of Canada	CSA (Oct 2003)
Trout Lake Forest	Domtar Pulp and Paper Products Inc.	CSA (Dec 2003)
Wabigoon Forest	Domtar Pulp and Paper Products Inc.	CSA (Dec 2003)
Iroquois Falls Forest	Abitibi-Consolidated Company of Canada	CSA (Feb 2004)
Nighthawk Forest	Abitibi-Consolidated Company of Canada	CSA (Feb 2004)
Whiskey Jack Forest	Abitibi-Consolidated Company of Canada	CSA (Feb 2005)
Kenora Forest	Weyerhaeuser Company Ltd.	CSA (Apr 2005)
French-Severn Forest	Westwind Forest Stewardship Inc.	FSC (Mar 2002)
Gordon Cosens Forest	Spruce Falls Inc.	FSC (Apr 2003)
Nipissing Forest	Nipissing Forest Resource Management Inc.	FSC (May 2003)
Romeo Malette Forest	Tembec Industries Inc.	FSC (Nov 2004)
Smooth Rock Falls Forest	Tembec Industries Inc.	FSC (Mar 2005)
Algoma Forest	Clergue Forest Management Inc.	FSC (Jun 2005)
Northshore Forest	Northshore Forest Inc.	FSC (Jun 2005)
Pineland Forest	Pineland Timber Company Ltd.	FSC (Aug 2005)
Martel Forest	Tembec Industries Inc.	FSC (Jan 2006)
Sudbury Forest	The Vermillion Forest Management Company Ltd.	FSC (May 2006)
Spanish Forest	Domtar Inc.	FSC (Aug 2006)
Black Sturgeon Forest	Bowater Canadian Forest Products Inc.	SFI (Jan 2005)
Caribou Forest	Bowater Canadian Forest Products Inc.	SFI (Jan 2005)
Dog River-Matawin Forest	Bowater Canadian Forest Products Inc.	SFI (Jan 2005)
English River Forest	Bowater Canadian Forest Products Inc.	SFI (Jan 2005)
Kenogami Forest	Terrace Bay Pulp Inc.	SFI (Jan 2005)
Ogoki Forest	Long Lake Forest Products Inc.	SFI (Mar 2007)

Table 9b - Status of forest certification in Ontario by management unit, March 31, 2007

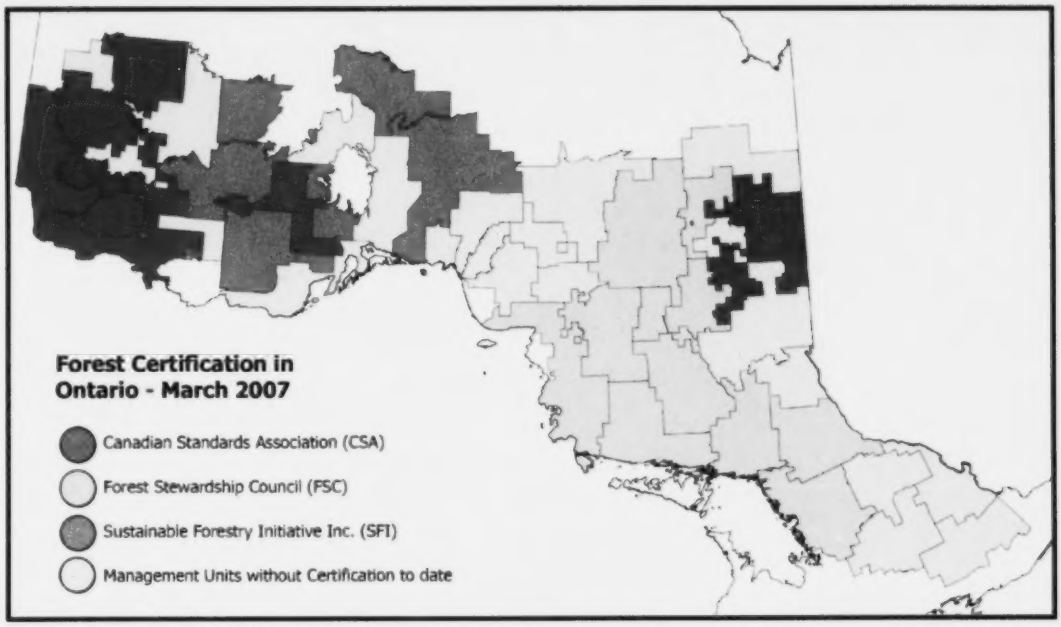


Figure 9a - Map of status of forest certification in Ontario, March 31, 2007

The MNR ensures the sustainable forest management of Ontario's Crown forests through a rigorous policy and regulatory framework. Forest companies operating in Ontario are required to comply with a long-term, ecosystem-based forest management planning process. Extension of Sustainable Forest Licences is dependent upon satisfactory results from a mandatory, periodically-conducted Independent Forest Audit. Therefore forest management companies in Ontario are well positioned to meet any forest certification/registration system standard.

Forest Science & Research



The knowledge base for sustainable forest management is continually expanding. MNR maintains currency with this expanding knowledge base through research, scientific studies, and technical and policy development programs in a variety of subjects, including:

- Development of new and improved data and information sources;
- Creation and implementation of new polices, procedures, and forest management guides;
- Development of new forest management methods, models, and tools; and
- Development and implementation of long-term monitoring programs and scientific studies.

This chapter highlights significant advances and milestones during 2006/07 in specific policy development, technical development, and scientific programs related to forest management made by MNR in cooperation with its partners. Many research projects are ongoing or cover subjects indirectly related to forest management and are not reported here. Further information on the nature of other research work undertaken by MNR can be found at http://ontariosforests.mnr.gov.on.ca.

Climate Change and Carbon Sequestration

Over the last 50 to 100 years, increased industrialization and human activities have begun to affect the balance of the Earth's natural climate. Increasing the amount of greenhouse gases causes the Earth's atmosphere to heat up. When this global warming affects our weather patterns and climate conditions, it is referred to as climate change. In Ontario, it is expected that the average temperature will rise by as much as three to eight degrees Celsius over the next century. Climate change will affect many of the social and environmental values that Ontarians have come to appreciate.

In 2006/2007, MNR produced a strategic plan on climate change to describe how MNR contributes to the Ontario Government's commitment to reduce the rate of global warming and the impacts associated with climate change. The strategic plan identifies strategies designed to:

- Understand and project the potential impacts of climate change on Ontario's natural resources and ecosystems;
- Develop tools and techniques to mitigate the impacts of climate change; and
- Help Ontarians adapt to climate change.

MNR has sponsored, cosponsored, or participated in many research projects designed to provide a better understanding of the impacts of climate change on the health of Ontario's ecosystems, communities, and people. Research projects on climate change continued in 2006/07, including investigations into:

- The potential impacts of climate change on fish and fisheries;
- The potential impacts of climate change on parks and protected areas;
- The potential impacts of climate change on birds;
- The potential impacts of climate change on forests;
- The potential for carbon sequestration through afforestation;
- Carbon storage in Ontario's forests; and
- Climate-related stress in polar bears.

As part of understanding, mitigating, and adapting to climate change, MNR has developed an educational tool to show how Ontario's climate might be very different in the future if we do nothing, compared to how it might be if actions are taken to mitigate the impacts. This tool, known as the Climate Change Mapping Browser, projects temperature and precipitation patterns based on human activities and greenhouse gas emissions. The Climate Change Mapping Browser can be accessed on MNR's website.

To further understand the potential impacts and potential mitigating factors of climate change, MNR has been examining the amount of carbon stored in Ontario's forests, the duration of its storage, and the potential for increasing storage through silviculture. Computer models can predict carbon storage by converting information on the state of the forest (age, species composition, and harvest) into values of carbon in the forest (both live and dead organic matter) and in wood products. Using computer models and information about Ontario's

forests from the forest management planning process, current and future estimates of the amount of carbon stored in forests and wood products were produced in 2006/07. These estimates show that Ontario's forests are projected to be a sink for carbon, indicating that the amount of carbon storage is increasing, resulting in the net removal of greenhouse gases from the atmosphere.

Emulating Natural Disturbance Patterns

As described in the *Annual Report on Forest Management 2004/05*, MNR was required by the EA Declaration Order to develop an action plan outlining how the effectiveness of the directions in the *Forest Management guide for Natural Disturbance Pattern Emulation* would be assessed.

Based on the action plan, implementation of multiple-scale research studies to investigate Ontario's fire regime and fire events were continued in 2006/07. Implementation of an associated communication and transfer strategy, aimed at transferring research findings to field practitioners and policy developers, was initiated. Products from these studies included:

- Establishing state of the knowledge of fire size distribution and post-fire residual structure in boreal forests;
- Improving fire regime simulation modeling capability by comparing fire simulation methods and examining uncertainty in user input and data; and
- Mapping residual structure at tree and patch scales using remote sensing.

Progress on Forest Management Guidelines

MNR has been making progress on restructuring the content and consolidating the Forest Management Guidelines into fewer documents. Refer to *Ontario's Forest Management Guides: An Introduction* at http://ontariosforests.mnr.gov.on.ca. This is a complex, ongoing process that will result in a suite of five forest management guides. Progress on the development and review of the guides is discussed below:

Landscape Guide

Development of the Landscape Guide continued during 2006/07. The focus was on the development and implementation of pilot testing of the ecoregional direction setting approach. Regional direction setting teams were identified to support Landscape Guide development.

The Landscape Guide development team is utilizing the Boreal Forest Landscape Dynamics Simulator (BFOLDS) to generate landscape fire disturbance regimes (the BFOLDS computer model was developed by MNR as outlined in the *Annual Report on Forest Management 2003/04*). BFOLDS can predict medium-term forest fire regimes and forest cover type changes over large forest regions and many millions of hectares. It effectively combines the best and most recent published science on forest fire processes and succession with Ontario spatial databases of weather, fire ignition patterns, forest species distribution, soil, and terrain. The model simulates what fire disturbances could happen on the landscape without human intervention under present or hypothetical conditions. These simulations are being utilized to develop and test alternate forest management scenarios while transferring this knowledge to MNR planners and foresters.

In support of implementation of the Landscape Guide, the collation of science-based information packages for each Landscape Guide region and the development of a computer-based tool known as the Ontario Landscape Tool were initiated. As noted below, spatial modelling to support development of the Landscape Guide was ongoing through 2006/07.

Stand and Site Guide

Development of the Stand and Site Guide also continued in 2006/07. A working draft of the Stand and Site Guide was prepared for November 2006. Based on internal MNR review and Provincial Forest Technical Committee input, this draft was revised in March 2007. As noted below, research into aquatic effects and moose use of aquatic feeding areas was ongoing through 2006/07 in support of development of the Stand and Site Guide.

Silviculture Guide(s)

The Silviculture Guide is actually a suite of documents that describe the practices that are acceptable for use in Ontario. During 2006/07 consideration was given for revision of these documents following completion of the Landscape and Stand and Site Guide projects.

During 2006/07, work continued on the summary and transfer of the latest study results from the long-term study at the Swan Lake Forest Research Reserve in Algonquin Park. This work focuses on determining best management practices and demonstrating tree quality improvement through careful logging in the maple-beech forest in the Great Lakes St. Lawrence forest region. Results from this study will support updates to the hardwood silviculture guide and tree marker certification training courses.

Resource-Based Tourism Values Guide

The five year review of the tourism guide was initiated and completed in 2006/07. The review included workshops and input opportunities were provided to both forest and tourism industry officials. It was broadly concluded that the tourism guide was still relevant and a revision to the guide was not required at this time.

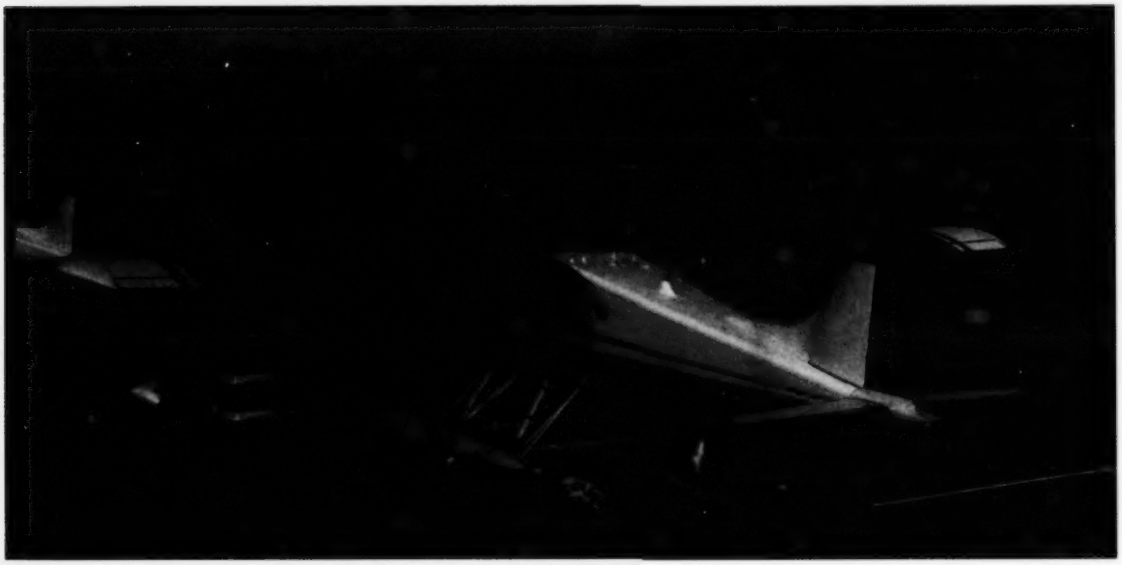


Figure 10a - Fly-in fishing camp

Research on the effectiveness of the resource-based tourism values guide continued in 2006/07 with the development of models that predict the effects of road access quality on recreational fishing. These models can be used to assess the effectiveness of scenarios that involve natural degradation of roads in relation to recreational fishing effort. As such, the models provide a way to assess the effectiveness of natural abandonment of roads for protecting tourism values. Development of the models into a generic tool (the Landscape Fisheries Model) to study recreational fishing behaviors was initiated.

Further research was conducted to develop an understanding of the reasons for road access management conflicts in two northern Ontario communities. Through interviews with key individuals, a conflict theory was developed that provides the means to understand and identify potential solutions to road access conflicts.

The effectiveness of road access control mechanisms will be improved by finding acceptable solutions to road access management among forestry, resource-based tourism and recreational interests.

Cultural Heritage Values Guide

The *Cultural Heritage Values Guide* was completed in 2006/07 with the final decision notice being posted on the Environmental Bill of Rights registry in March 2007. Leading up to the final version of the Guide, the review of the computer model used to identify archaeological potential areas, known as the Heritage Assessment Tool, was completed. Updates included the automation of several processes within the Heritage Assessment Tool. In addition, socio-economic analysis of the Guide was completed to investigate the potential implications of the proposed direction in the Guide on wood supply and associated economic parameters.

Spatial Modeling to Evaluate the Effectiveness of Forest Management Guides

Spatial habitat models can help evaluate the effectiveness of forest management guides and management plan implementation. If application of a forest management guide is expected to conserve biodiversity values, then clear statements of how species will respond to particular elements of the guide are required. Models can be utilized to predict what will happen to wildlife as a result of altering combinations of management factors at both stand and landscape scales.

By ensuring clear linkages are made between forest management activities and expected wildlife response, a better understanding of the consequences of policy decisions on the sustainability of wildlife values can be established in an adaptive management approach.

Landscape Scripting Language is a multiple-scale spatial modelling tool developed at the Centre for Northern Forest Ecosystem Research in Thunder Bay. During 2006/07 this modelling approach continued to be utilized to model the effects of alternative forest management policies on wildlife habitat in support of the Landscape Guide development. Landscape Scripting Language was used to apply spatial habitat models to spatial projections of future forest conditions provided by both the Patchworks harvest scheduling model, and the BFOLDS natural disturbance model.

Strategic Modeling

In forest management planning, long term model projections forecast different levels of harvest renewal and tending levels to predict the short, medium and long-term economic, social and environmental benefits. As part of the development of a sustainable management strategy, planning teams utilize models to determine the sustainable level of harvest, termed the Available Harvest Area.

The primary model used in Ontario to determine the Available Harvest Area is the Strategic Forest Management Model. This model is a non-spatial forest modelling tool which allows users to analyze and represent large forested areas at a broad, strategic level.

Investigations into the feasibility of utilizing more spatially explicit models have been ongoing by MNR. As part of this initiative, during 2006/07 an evaluation of Patchworks, a spatial forest planning model, was completed and the model was approved for use in forest management planning in Ontario. Patchworks is a sustainable forest management optimization model in which spatially explicit harvest allocations can be developed. The Forest Analysis and Modeling Unit is supporting the development of two 2009 forest management plans utilizing Patchworks for strategic modeling.

Wood Supply

A report summarizing the priorities for improving estimates of wood supply was released in 2006/07. This report, based on the results of a 2005 survey of Ontario forestry professionals and a subsequent expert workshop, examines the following:

- How other jurisdictions are addressing wood supply prediction issues;
- Ontario's process for estimating wood supply; and
- Priorities for focusing efforts to improve wood supply predictions in Ontario.

The report identifies the following priorities:

- Improving linkages between forest resources inventory and growth and yield data;
- Acquiring more realistic information to predict and validate successional changes at various stages of stand development;
- Developing new growth and yield curves for planted and naturally regenerated stands,
- Updating the provincial forest resources inventory more often; and

- Assembling better data on factors affecting site productivity to include in growth and yield models.

Growth & Yield

Measuring and predicting how trees and forests grow is the science of growth and yield. The Growth and Yield Program in Ontario is actively involved in a wide range of activities: from the collection of field data and information, to the creation of new models, guidelines, and monitoring procedures. Results from this program are extensively utilized in forest management planning and help guide the determination of the sustainable harvest area. The program also plays a key role in shaping the models and tools used to forecast the growth and development of Ontario's forests. The core element of this program is an extensive network of permanent sample plots on which the growth and status of individual trees is tracked through time. Data collected from these plots provides information on forest growth and yield as influenced by site, forest structure, silvicultural treatments and natural events.

Figure 10b - Growth and yield field research work

The program works cooperatively with a wide range of partners who assist in data collection and analysis. An ongoing partnership with the Forest Ecosystem Science Co-operative, Growth and Yield Science Unit, facilitated the implementation of an extensive field program in

2006/07 throughout the Area of Undertaking. Collaboration with the Canadian Forest Service, several universities, forest industry, and the Ontario Forest Research Institute, was instrumental in seeing the development of numerous new models and tools used to predict the growth and yield of common forest species. For example, significant improvements and enhancements were made to the benchmark yield curves, used extensively in forest management planning, through the incorporation of new data and the application of advanced modelling techniques.

Ontario has a long history of practicing silviculture. Unfortunately, a very limited suite of yield curves existed for managed conditions, resulting in significant underestimation of the yield characteristics of silviculturally modified stands. In 2006/07, the commitment to collecting long-term permanent sample plot data led to the development of both new and improved growth and yield estimates for managed (plantation grown) jack pine, black spruce, white spruce, red pine and white pine. A process was also developed to ensure that these yield curves were quickly available for use in forest management planning, and plans utilizing these curves have exhibited significant positive impacts on wood supply forecasts. While additional data and modelling are necessary to expand the range of managed forest conditions covered, these curves represent a major step forward in our understanding of the impact of silviculture in Ontario on forest growth and yield.

While progress was made on many fronts, the Growth and Yield Program's accomplishments are often judged by the number of sample plots established or remeasured. By this results-based measure, the program experienced a successful year, with several new plots established, and 43 permanent sample plots remeasured. Data was also collected from hundreds of historic long-term monitoring plots of various designs and vintages. All measured plots were brought up to current provincial standards, and legacy data incorporated into the provincial database. Through partnerships, an additional 80 sample plots were established, and 541 plots remeasured. This wealth of data was quickly incorporated into improved yield curves and growth projections for Ontario's forests, and has also resulted in the publication of numerous peer-reviewed journal articles. Data is fuel for innovation, and this growing body of locally derived growth and yield science lends further support to MNR's mission of ecological sustainability – it improves our ability to predict future forest composition and structure.

Ontario continued its participation in a long-term monitoring program with the government of Canada. This project, known as the National Forest Inventory, involves the establishment of ground and photo-based monitoring plots, on a systematic grid, throughout Ontario. During 2006/07, the Growth and Yield Program established 31 NFI ground plots. While this data is contributing to existing modelling initiatives, its primary value will be in providing an

independent and unbiased assessment of both the extent and condition of Ontario's forest estate.

Aquatic Effects Research

A number of long-term scientific studies, designed to assess the effectiveness of the provincial *Timber Management Guidelines for the Protection of Fish Habitat*, with an emphasis on the numerical measurement and modeling of land use effects on aquatic ecosystems in northern Ontario, were continued in 2006/07. To date, aquatic effects research has been addressed through two integrated projects: the Coldwater Lakes Experimental Watersheds and the Comparative Aquatic Effects Program.

The Coldwater Lakes study was initiated northwest of Atikokan in 1990, to experimentally evaluate the effects of logging on lake ecosystems and to provide information about the effectiveness of shoreline reserves in preventing those effects. Five years of intensive pre-harvest monitoring (1991-1995) followed experimental logging in 1996 and 1998, and four years of post-harvest monitoring (1997-2001). Minor to moderate aquatic impacts, similar to those caused by wildfire, have been observed in the three impacted lakes. These impacts are associated primarily with increased groundwater yield after the forest trees are removed. They are expressed as temporary increases in nitrogen, potassium, and dissolved organic carbon in lake water, which temporarily decreases water clarity and increases lake productivity. The Coldwater Lakes program was completed in 2006.

The Comparative Aquatic Effects Program began in 1995 to measure the effects of timber management on aquatic ecosystems in Ontario's Boreal Forest, and to test the effectiveness of current timber management guidelines on preventing or minimizing these effects. The program focused on measuring timber harvest effects on coldwater streams, since coldwater stream habitat is expected to be relatively sensitive to disturbance in the surrounding area. The program investigated a number of areas including the key aquatic habitat variables to monitor the effects of timber harvest, the spatial scale of harvest impacts on aquatic ecosystems, the use of buffer strips to prevent sediment from moving overland and into waterways, the effects of logging roads as barriers to fish migration, and the development of computer-based tools to predict the location of small, unmapped streams that may serve as fish habitat. The results of these and other investigations will contribute to development of the Stand and Site Guide.

Northern Mammal Ecology Program

In 2006/07 the Moose Guidelines Evaluation Program was renamed the Northern Mammal Ecology Program to better reflect its scope, which has included forest-dwelling woodland caribou, elk, white-tailed deer, wolves, and small mammals as well as moose. As part of this ongoing project, a number of scientific transfer activities were completed during the 2006/07 fiscal year. These included the delivery of a number of scientific presentations related to the Northern Mammal Ecology Program, the potential effects of climate change on moose and caribou populations, and the tools developed to manage, manipulate and interpret data. In addition, in-depth analyses were conducted into moose use of aquatic feeding areas in support of development of the Stand and Site Guide.

Figure 10c - Bull Moose

Socio-Economic Analysis

Early in 2006, the Ontario Natural Resources Economic Model (ONREM) was developed. ONREM is an input-output model that can be used to obtain social and economic indicators to ascertain the viability of forest operations in forest management plans. Currently, ONREM is specific for Northwest Ontario, but plans are in the works to expand it to the Northeast and Southcentral regions.

A social and economic assessment framework was drafted for forest management planning teams, to serve as a reference for conducting socio-economics in forest management plans. The framework includes timber and non-timber value assessments using the Socio-Economic Impact Model, ONREM, Benefit-Cost Analysis, Direct Employment Calculation and Opportunity Cost Analysis.

Wildlife Population Monitoring

Provincial wildlife population monitoring is undertaken to determine if healthy populations of forest wildlife continue to be found across the Area of Undertaking and to contribute to an understanding of how forest management affects wildlife populations. The wildlife population monitoring program was reaffirmed through the EA Declaration Order as Condition 30.

During 2006/07, under the direction of the Ontario Terrestrial Assessment Program (OnTAP), monitoring partnerships with external parties were maintained, and implementation of the OnTAP's monitoring approach continued across the Area of Undertaking.

Partnership activities included ongoing support for Bird Studies Canada, to monitor forest bird migration, owls, and red shouldered hawks, as well as support for the University of Guelph's long-term small mammal monitoring in Algonquin Park. The 2006/07 fiscal year was the final year of the red-shouldered and spring woodpecker survey based on a mutual decision by MNR (OnTAP) and Bird Studies Canada. Red-shouldered hawks were downlisted to "Not At Risk" by both the Committee on the Status of Endangered Wildlife in Canada and the Committee on the Status of Species at Risk in Ontario in April, 2006 and the survey lacked the statistical power to detect the desired levels of decline for the species. Hawk population trends may be more efficiently monitored through other ongoing initiatives, including the hawk migration monitoring network and woodpeckers may be monitored through the breeding bird survey and forest bird monitoring plots.

No field work was conducted during the summer of 2006 due to reduced budgets. During this time a full program review was initiated by Wildlife Assessment Program staff, including the development of future program direction, the preparation of a five year implementation plan, and the investigation of new monitoring techniques and approaches.

In 2006/07, the Wildlife Assessment Program continued additional analysis of previously collected data for small mammals, forest birds, and terrestrial salamanders. Work also

continued, through OnTAP, on the maintenance of a central database as a repository for program data. This central database will provide other researchers the opportunity to access and share program data.

Ice Storm-Related Research

In early January 1998, a massive ice storm struck northeastern North America. The resulting damage from the storm was severe, with losses totaling $6.4 billion. Prior to this event relatively little information on ice storm damage had been published. In response to this event, MNR invested significant resources into research related to ice storm damage over the following five year period. In 2006/07, the results of the final study in the eastern Ontario series were released, focusing on the longer-term effects of applying fertilizer to damaged sugar maple stands. Based on this study, it is now known that:

- Moderate to severe crown damage reduces syrup production for up to 6-7 tapping seasons;
- Fertilizer applications do not appear to significantly improve maple recovery;
- Long-term effects of ice storm damage depend on age and tree condition when the damage occurred, as well as additional stresses (e.g. drought, nutrient deficiency, or disease) in the years after damage.

The Journal of Forestry published a summary of ice damage research and science in Ontario in January 2007.

Ontario Tree Marking Training Program

The Ontario Tree Marker Training Program was developed in 1993, to ensure the delivery of consistent, high quality tree marking across the Great Lakes–St. Lawrence forest region. Now led by Southern Science and Information staff, the program continues to grow and evolve to meet tree marker training needs.

Tree marking is the preferred mechanism for regulating forest management systems that involve partial cutting. Quality control is obtained by marking the trees that are to be removed or those to be left to grow. In this respect, the tree marker bears a high proportion of the responsibility for planning the logging and the future stand's health, vigour, and ability to meet the needs of other forest values. Tree markers need to be trained in all aspects of forest ecological and silvicultural systems management. Tree markers must be certified, or in the process of becoming certified, in order to mark Crown forests. Since 1994 this program has

trained 1277 participants, issued 542 tree marker certificates and has certified 81 tree marking auditors.

Figure 10d - Tree marker training

A college program stream of tree marker training has also been developed in collaboration with Algonquin College, Sir Sandford Fleming College, and Sault College. These colleges are using the tree marking curriculum to train students who are enrolled in their forest technician programs. Through this partnership, students can pursue the provincial tree marker certification with 151 students being trained and tested to date.

The Ontario Tree Marking Certification Program is also having an effect on the sustainable management of forests beyond Ontario's borders. These courses have been attended by individuals from other jurisdictions within Canada and the United States. The program has such an excellent reputation that Quebec is using it as a model for the development of its own tree marking program. International standards for Forest Stewardship Council certification in the Great Lakes-St. Lawrence forest are based largely on practices advocated and taught by the Ontario Tree Marking Certification Program.

In 2006/07 the Tree Marking Program was involved in 13 events, including college training/testing, teachers' training, level 1 and refresher courses, and certification audits; 298 people participated in the program. Instruction and assistance was provided by MNR, industry and other partners.

Links for Chapter 10

Further information on the following topics can be found at the identified web sites.

MNR research
http://ontariosforests.mnr.gov.on.ca.

Climate change
http://www.mnr.gov.on.ca/en/Business/Forests/2ColumnSubPage/STEL02_175243.html.

Carbon sequestration and storage
http://www.mnr.gov.on.ca/en/Business/OFRI/Publication/MNR_E005589P.html.

Ontario climate change projections
http://www.mnr.gov.on.ca/en/Business/OFRI/Publication/MNR_E005587P.html

Establishing the state of the knowledge of fire size distribution and post-fire residual structure in boreal forests
http://www.mnr.gov.on.ca/en/Business/OFRI/Publication/MNR_E005613P.html.

Northern Mammal Ecology Program
http://www.mnr.gov.on.ca/en/Business/CNFER/2ColumnSubPage/STEL02_164504.html

Human Dimensions of Resource Management Program
http://www.mnr.gov.on.ca/en/Business/CNFER/2ColumnSubPage/STEL02_164503.html

Comparative Aquatics Effects Program
http://www.mnr.gov.on.ca/en/Business/CNFER/2ColumnSubPage/STEL02_164502.html

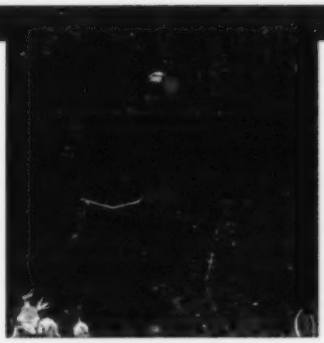
Spatial Ecology Program
http://www.mnr.gov.on.ca/en/Business/CNFER/2ColumnSubPage/STEL02_164505.html

Priorities for improving estimates of wood supply
http://www.mnr.gov.on.ca/en/Business/OFRI/Publication/MNR_E005557P.html

Longer-term effects of applying fertilizer to damaged sugar maple stands
http://www.mnr.gov.on.ca/en/Business/OFRI/Publication/MNR_E005549P.html.

Ontario's forest science research and extension efforts after the 1998 ice storm
http://www.mnr.gov.on.ca/en/Business/OFRI/Publication/MNR_E005611P.html

Aboriginal Peoples



Condition #34 of the Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management in Ontario requires MNR district managers to conduct negotiations at the local level with Aboriginal peoples whose communities are situated in a management unit. These negotiations are to identify and implement ways of achieving a more equal participation by Aboriginal peoples in the benefits provided through the forest management planning process. The negotiations include but are not limited to the following matters:

a) Providing job opportunities and income associated with forest and mill operations in the vicinity of Aboriginal communities;

b) Supplying wood to wood processing facilities (such as sawmills) in Aboriginal communities;

c) Facilitation of Aboriginal third-party licence negotiations with existing licensees where opportunities exist;

d) Providing forest resource licences to Aboriginal people where unallocated Crown timber exists close to reserves;

e) Development of programs to provide jobs, training and income for Aboriginal people in forest management operations through joint projects with Indian and Northern Affairs Canada; and

f) Identifying other forest resources that may be affected by forest management or which can be addressed in the forest management planning process.

For the purposes of this Chapter, use of the term "Aboriginal" will be used to include references to "First Nations" and "Native" as per the definition in the Canadian Constitution 35(2), unless quoted directly from a source or in the use of a proper name.

Implementation of Condition #34

The scope of condition #34 is broad, and its application and implementation are determined at the local level. The arrangements and agreements put into effect by MNR district managers and Aboriginal communities take different forms, in an effort to accommodate the unique needs, capacities, and situations of individual Aboriginal communities in the context of available opportunities.

In its decision, the Environmental Assessment (EA) Board ordered the MNR to build upon initiatives already underway, and to provide new opportunities for Aboriginal communities to benefit from forest management activities in their local areas. In endeavoring to develop opportunities for Aboriginal communities to benefit, MNR proceeds in implementing condition #34 in a manner consistent with the *Crown Forest Sustainability Act* (CFSA). The statute provides legislative authority to the MNR, as well as a framework for the sustainable management and use of forest resources. The CFSA has enabled the MNR to put mechanisms in place that may assist in facilitating the implementation of condition #34.

While responsibility for implementation of condition #34 rests with the MNR, the EA Board recognized that the involvement of other parties is critical to successful implementation. Such involvement would include participation of Aboriginal communities, the forest industry, and other government bodies (e.g., Ontario ministries, Indian and Northern Affairs Canada, and Natural Resources Canada). Aboriginal communities may be individually involved in implementation of condition #34, or as members of groups of communities with common interests situated in a common geographic area.

Participation in forest management and economic development activities is summarized under four categories; access to resources, role in planning and management, silvicultural opportunities, and training and development.

Access to Resources

Aboriginal people are often in a position to operate as forest harvesters. Although Ontario's wood supply is almost completely allocated to Sustainable Forest License (SFL) holders, the MNR has helped the forest industry and Aboriginal communities negotiate access to resources. For example, harvest opportunities are made available through overlapping licences issued to First Nations.

Role in Planning and Management

MNR districts have sought out effective forums for Aboriginal communities to have a greater say in the planning and management of nearby forest resources. It is mandatory for Forest Management Plans (FMPs) to include a detailed Aboriginal Background Information Report and maps of Aboriginal Values. Districts have provided financial assistance to some communities either to prepare these components themselves or to hire outside contractors.

In many districts Aboriginal peoples are represented, together with industry and government, on forest management planning teams.

Silvicultural Opportunities

Forest renewal and tending includes growing nursery stock, planting, seeding, spacing, cleaning, thinning, and site preparation. Many Aboriginal peoples have experience in silvicultural activities, and district managers have sought specific agreements between the forest industry and Aboriginal communities to outline the type and scope of contract work that can be made available. This type of work can contribute to an effective economic development program.

Training and Employment

Although the MNR does not have a training mandate, district managers have found ways to help co-ordinate existing federal and provincial programs to assist Aboriginal communities in preparing for increased participation in forest management activities.

In some districts, the forest industry provides the training strategy, recruitment and hiring support, and business opportunities for independent contractors. In some instances the MNR helps to establish Aboriginal training centres by providing facilities, equipment and leadership. For many years MNR districts have provided opportunities for joint projects with Aboriginal peoples, by providing training, funding, facilities, and equipment. In 2006/07 MNR participated in the Aboriginal Youth Work Exchange Pilot Program and the First Nations Natural Resources Youth Employment Program (First Nation Ranger program). The latter program is a partnership between the Ministry of Natural Resources, Ontario Secretariat for Aboriginal Affairs, Confederation College and several forest companies including Bowater Canadian Forest Products Inc.

District Progress

The MNR is required to report on the progress of negotiations under condition #34 for each district. Of the 26 MNR districts, four are outside the Area of the Undertaking (AOU) - including Aylmer, Aurora, Cambridge, and Midhurst. Peterborough and Kemptville districts are only partially included in the AOU; they are reported together with the Bancroft District in this document. Highlights of the benefits provided to Aboriginal communities in 2006/07 for each MNR district follow.

District-by-district reporting is presented using the four categories set out above, in the order given. General comments which do not fall into one of the four categories are typically set out at the end of each district section.

Algonquin Park District

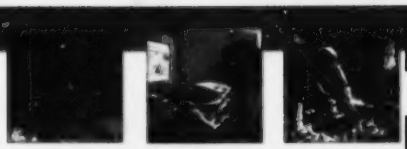
Management Unit: Algonquin Park

There are a number of Aboriginal communities that had an interest in forest management activities within Algonquin Park during the 2006/07 fiscal year: Algonquins of Pikwakanagan (Golden Lake), Whitney Algonquins, Mattawa/North Bay Algonquins, and the Antoine Algonquins.

Pikwakanagan-affiliated Makwa Development Corporation harvested approximately 70,000 cubic metres.

A Makwa-operated nursery provided 17,000 seedlings for spring 2007 planting. Aboriginal contractors completed approximately 2241 hectares of tree marking and 165 hectares of hardwood stand improvement during 2006/07. Some Whitney Algonquins engaged in road construction and hauling.

The Algonquin Forest Authority and the MNR notify Aboriginal communities in the area of training opportunities in the District (e.g. tree marking, fire training, etc.) and sponsor one to two area individuals to take these courses. The MNR provided funding for a native student to be involved in various resource management activities. The Algonquin Forest Authority also holds training sessions for Aboriginal contractors, on such topics as tree marking, careful logging, and water crossings. Overall, approximately 25 Aboriginal people were employed in the industry, in bush operations. The MNR provided funding for a community pre-feasibility study on bio-energy opportunities.



Bancroft, Kemptville and Peterborough Districts

Management Units: Bancroft-Minden and Mazinaw-Lanark Forests (including portions of the Mazinaw-Lanark Forest within Kemptville and Peterborough Districts)

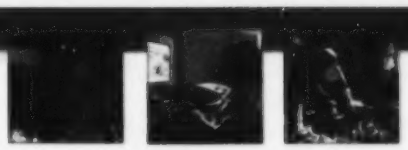
There are two Aboriginal communities within the operating areas of Bancroft/Kemptville districts: Algonquins of Whitney and Ardoch Algonquins First Nation. Several communities, including Alderville First Nation, Curve Lake First Nation, Mohawks of the Bay of Quinte, Hiawatha First Nation, Sharbot Obaadjiwan, and the Algonquins of Pikwakanagan (Golden Lake) also had interests in forest management planning within the operating area of the forests during the 2006/07 fiscal year.

The Algonquins of Whitney are offered an allocation of 140 hectares every five years on the Bancroft-Minden Forest. Four members of Sharbot Obaadjiwan accepted letters of authorization for the harvest of personal-use firewood.

Sharbot Obaadjiwan had active members on the Mazinaw-Lanark Forest management planning team and Local Citizens Committee (LCC). An LCC seat was open for an Aboriginal representative on the Bancroft-Minden Forest.

Discussions with community members occurred, and preparations were carried out to deliver tree-marking and tree planting projects on the Mazinaw-Lanark Forest. Sharbot Obaadjiwan were producing a protocol for the harvest of birch bark for canoes.

Aboriginal community members were invited to participate in the Bancroft-Minden Forest annual tree marking and forest operations training. Mazinaw-Lanark Forest Inc. also held training in FOP interpretation. Five Sharbot Obaadjiwan community members are now certified tree-markers. Approximately five Aboriginal community members worked in the logging industry and about three were employed to do silviculture work, cruising, prescriptions, and timber marking. The District is also aware that there are a number of Algonquins working in local mills but numbers are unavailable.



Chapleau District

Management Units: Martel and Pineland Forests

There are four Aboriginal communities located within Chapleau District: Brunswick House First Nation, Chapleau Cree First Nation, Chapleau Ojibwe First Nation, and Michipicoten First Nation. Although located outside of the District, Flying Post First Nation, Mattagami First Nation, Missanabie Cree First Nation, Mississauga #8 First Nation, Sagamok Anishnawbek and Serpent River First Nation also had areas of interest within the Chapleau District during the 2006/07 fiscal year.

The forest management planning team for the Pineland Forest had active Aboriginal members from the Brunswick House, Chapleau Cree, Mattagami and Michipicoten First Nations. The Martel planning team had active members from the Brunswick House, Chapleau Cree, Michipicoten and Missanabie Cree First Nations. Brunswick House also provided a member (non-active) for each of the Pineland and Martel LCCs. Chapleau Ojibwe First Nation chose not to actively participate in both the Pineland and Martel Forest management planning teams and the Chapleau Area Aboriginal Resource Team (see below), due to a lack of capacity within the community.

An independent contractor from Chapleau Cree First Nation was engaged to do aggregate pit inspections, prepare an annual Martel Forest compliance report, build woodflow and water crossing application tools for Tembec Inc. (Tembec), and to carry out a watercrossing inventory on part of the Gordon Cosens Forest situated in Chapleau District. A business affiliated with this contractor developed a business plan in response to the Ministry issued request for proposal for the available cedar in Northeast Region, and received a conditional commitment of 60,000 cubic metres from the Minister in January 2007 to pursue this venture. Another contractor from Chapleau Cree First Nation was contracted to do gravel hauling and road grading on the Martel Forest; they were also contracted to haul wood waste.

The District developed a work plan for one position under the Aboriginal Youth Work Exchange Program for the summer of 2006, and confirmed its interest in taking up to two positions in the summer 2007 Program. Tembec provided a summer 2006 employment opportunity to Brunswick House First Nation youth for five weeks.

The First Nation Task Team formed in 2004 to increase Aboriginal involvement in the forest management planning process was renamed as the Chapleau Area Aboriginal Resource Team, and its terms of reference adjusted to reflect a wider interest in resource management. Five

First Nations were actively involved. The Chapleau Area Aboriginal Resource Team provided input to planning processes for local forest management units.

As agreed in fiscal 2005/06, the MNR provided funding support for the development of a natural resource management strategy for the Brunswick House First Nation community.

Cochrane District

Management Units: Cochrane-Moose River Management Unit, and Iroquois Falls and Smooth Rock Falls Forests

There are eight Aboriginal communities in the Cochrane District; of these only Moose Cree First Nation, Wahgoshig First Nation and Taykwa Tagamou Nation have all or a portion of their traditional territories within the Area of Undertaking. Mattagami, Matachewan and Flying Post First Nations are located nearby, although outside of the Cochrane District boundaries.

Taykwa Tagamou Forestry Services harvested 143,263 cubic metres on the Cochrane-Moose River Management Unit and 96,509 cubic metres on the Smooth Rock Falls Forest. In addition, 217,292 cubic metres were made available to Taykwa Tagamou and Wahgoshig First Nation by Abitibi Consolidated Company of Canada (Abitibi) on the Iroquois Falls Forest; 138,982 cubic metres were harvested. Abitibi contracted to buy 70,000 cubic metres and 40,000 cubic metres of wood, respectively, from Taykwa Tagamou and Wahgoshig.

Wahgoshig had an active member on both the LCC and the forest management planning team for the Cochrane Moose River 2008 Contingency Plan; Taykwa Tagamou had a non-active member on the 2008 Contingency Planning team. Community representatives from Wahgoshig, Taykwa Tagamou, and Matachewan First Nations sit on the Cochrane Area 2010 forest management planning team.

The Ministry offered funding to Taykwa Tagamou Nation and the Moose Cree and Wahgoshig First Nations to assist with the community background report and values collection for the Cochrane-Moose River 2008 Contingency Plan. Wahgoshig produced an updated background report. Abitibi provided Wahgoshig with tree planting opportunities on the Iroquois Falls Forest. The Moose Cree First Nation was engaged on two road construction projects in 2006/07. Taykwa Tagamou conducted road construction work on the Smooth Rock Falls Forest.

There were continuing discussions during 2006/07 between Tembec and Taykwa Tagamou Nation regarding a working relationships agreement and a long-term forestry agreement. Tembec has developed similar agreements with Wahgoshig First Nation. Through the agreements the company provides financial assistance for training and education initiatives. Moose Cree, Mattagami, Wahgoshig and Taykwa Tagamou forestry liaison officers worked closely with Tembec to create employment opportunities. Tembec worked with a silviculture company and Confederation College to provide the 2006 Junior Ranger Program; 12 Aboriginal youth attended. In addition, it has engaged Aboriginal people to manage nuisance beaver, to consult on road construction and harvesting in sensitive areas, and to perform brush-cutting and quality control work. Further, Tembec provided financial support for the Moose Cree Forestry Liaison position, and increased communications regarding employment opportunities (job postings) with Aboriginal communities in northeastern Ontario.

Abitibi has also developed working partnership agreements with Wahgoshig First Nation and Taykwa Tagamou. The agreements provided funding for training programs, youth development and education, co-op and job sharing opportunities, as well as for community infrastructure.

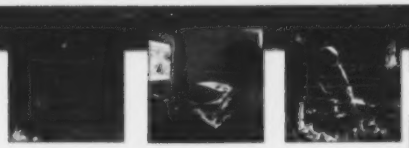
A silviculture company made efforts to recruit workers from Moose Cree First Nation and Taykwa Tagamou for tree-planting, pre-commercial thinning, and fire fighting.

Dryden District

Management Units: Dryden, Wabigoon, and English River Forests

There are three Aboriginal communities in the Dryden District: Wabigoon Lake Ojibway Nation, Eagle Lake First Nation and the Aboriginal people of Wabigoon. The latter is a community of Status and Metis individuals from the village of Wabigoon. Although located outside of the District, the communities of Lac Seul First Nation, Lac des Mille Lacs First Nation, the Ojibway Nation of Saugeen, Naotkamegwanning Anishnabe (Whitefish Bay) and Wabauskang First Nation also had interests in forest management planning within the Dryden District during the 2006/07 fiscal year.

Noopimiing Anokeewin, a business affiliated with the Wabigoon Lake Ojibway Nation, harvested 5,908 cubic metres through an overlapping licence on the Dryden Forest, and approximately 54,698 cubic metres for Domtar Inc. (Domtar) on the Wabigoon Forest. The latter harvest provided work for approximately 20 people. Eagle Lake First Nation did not harvest on the Wabigoon Forest during 2006/07, although Domtar provided the opportunity to



harvest 25,000 cubic metres. Eagle Lake did harvest 6,903 cubic metres on the Dryden Forest under an overlapping licence. The Aboriginal People of Wabigoon harvested 7,898 cubic metres on the Dryden Forest.

Eagle Lake First Nation, Wabigoon Lake Ojibway Nation, Lac Seul First Nation, Whitefish Bay First Nation and Wabauskang First Nation all have representatives on the 2008-2018 Wabigoon FMP planning team. Lac des Mille Lacs First Nation, Ojibway Nation of Saugeen and Wabigoon Lake Ojibway Nation were all invited to take part in planning for the 2009-19 English River FMP. Lac des Mille Lacs appointed a representative to the team.

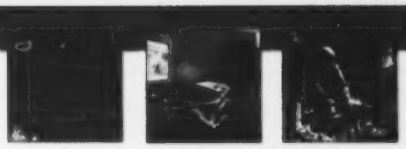
Dryden Forest Management Company, Bowater Canadian Forest Products Inc. (Bowater), and Domtar purchased 2.6 million seedlings from the Wabigoon Lake Ojibway Nation-affiliated Waabigoniiw Saaga'iganiiw Anishinaabeg tree nursery. Noopimiing Anokeewin was contracted to provide road construction and maintenance services on the Dryden Forest. Lac Seul First Nation accepted a contract from Domtar to pre-commercial thin 100 hectares; 63 hectares were completed, providing seasonal work for 8 people.

Domtar, in co-operation with Confederation College, provided summer employment for three Wabigoon Lake Ojibway Nation students, two Eagle Lake students and one from the Lac Seul First Nation. Wabigoon Lake Ojibway Nation, Lac des Mille Lacs First Nation and Ojibway Nation of Saugeen youth participated in the Bowater-sponsored First Nations Ranger program.

Fort Frances District

Management Units: Crossroute and Sapawe Forests

There are nine Aboriginal communities within the Fort Frances District: Big Grassy First Nation, Couchiching First Nation, Lac La Croix First Nation, Naicatchewenin First Nation, Rainy River First Nation, Seine River First Nation, Stanjikoming First Nation, Nicickousemenecaning First Nation, and Anishinaabeg of Naongashiing (previously referred to as Big Island). The Naotkamegwanning Anishinabe (Whitefish Bay) and Ojibways of Onegaming First Nations are located outside of the District, but their traditional territories extend into the District. Lac des Mille Lacs First Nation has an uninhabited reserve adjacent to the Sapawe Forest. Lac des Mille Lacs and Wabigoon Lake First Nations are also interested in being involved with the forest management planning process.

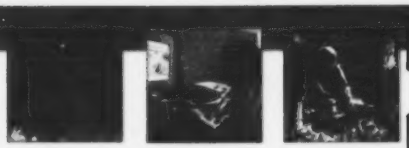


Aboriginal communities had a range of harvest opportunities and activities in Fort Frances District during 2006/07; all opportunities were on the Crossroute Forest. Harvesting was conducted directly by the communities and/or through community-affiliated businesses. Allocations in some cases were granted to communities, and in other instances harvesting was done under contract to another industry organization. Following is a list of prominent harvest opportunities:

Allocation	**Aboriginal Community**
6,000 cubic metres	Big Grassy; overlapping licence, through an affiliated business
98,500 cubic metres	Couchiching; overlapping licence and sub-contracting, through a community-affiliated business
26,000 cubic metres	Lac La Croix; overlapping licence
26,000 cubic metres	Naicatchewenin; overlapping licence to Naicatchewenin Development Corporation
25,000 cubic metres	Nicickousemenecaning
4,000 cubic metres	Rainy River; overlapping licence, through an affiliated business
65,500 cubic metres	Seine River; four overlapping licences, through four community-affiliated independent contractors
59,700 cubic metres	Metis community; partially accessed under an overlapping licence, remainder through harvest contracts; work performed through four affiliated businesses

Preparation for the 2007-17 Crossroute FMP began in prior years. Each Aboriginal community within or adjacent to the forest had been invited to participate in the development of the Crossroute FMP. During the course of the planning process ending in December 2006, 9 of 10 aboriginal communities identified representatives. Several of the representatives were actively involved in the planning process. Eleven communities have Native Background Information Reports filed for the Crossroute plan.

Four communities were invited to participate in development of the 2010 Sapawe FMP. Two communities named active members to the planning team. Another has two representatives on the LCC. One community has a Native Background Information Report on file.



Abitibi awarded silvicultural contracts (planting, site preparation, thinning and slash pile burning) on the Crossroute Forest to 10 Aboriginal individuals or Bands. Besides the logging operators mentioned above who may construct/maintain roads for harvesting, on the Crossroute there were additional forest access contracts, for construction of new roads or road maintenance, roadside brushing, and beaver control.

An estimated 79 members of Aboriginal communities (including approximately 19 Metis people) were employed in forest management-related work in 2006/07. A further 19 Aboriginal people were employed in non-aboriginal administered industry organizations, primarily by Abitibi and its contractors. Education and training pertaining to silviculture work is provided annually through silviculture contracts.

Hearst District

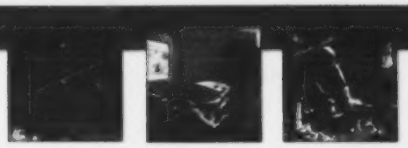
Management Units: Hearst and Gordon Cosens Forests

The only Aboriginal community in the Hearst District is Constance Lake First Nation. Although located outside of the District, Hornepayne First Nation, Taykwa Tagamou, and Moose Cree First Nation also had interests in forest management planning within the Hearst District during the 2006/07 fiscal year.

Constance Lake First Nation was allocated 13,030 cubic metres on the Hearst Forest, to be harvested by Amik Logging Limited Partnership (Amik), the successor organization to Mammamattawa Inc. Amik also harvested 52,000 cubic metres for Tembec and 38,535 cubic metres for Lecours Lumber Co. Ltd. on the Hearst Forest. Amik also had a negotiated 75,000 cubic metres wood commitment on the Kenogami Forest in Nipigon district. Constance Lake-affiliated First Nation Timber Ltd. was contracted to harvest 32,000 cubic metres of conifer for Tembec on the Gordon Cosens Forest; Aboriginal-affiliated CS Enterprises was contracted to harvest 35,000 cubic metres from Tembec private lands.

Constance Lake First Nation has three representatives on the Hearst Forest FMP planning team. Representatives from the Moose Cree and Constance Lake First Nations were named to the Gordon Cosens Forest 2010-2020 FMP planning team.

Lecours Lumber Co. contracted three independent Aboriginal owner-operator truckers; the owner-operators and a First Nations company also hauled wood waste from Lecours Lumber, Tembec-Hearst and Columbia Forest Products to the Calstock Co-Gen site.



Constance Lake-affiliated Amik employed up to 24 workers during 2006/07. Columbia Forest Products had three fulltime First Nation employees in its plywood facility. Aboriginal people comprised nearly one third (or 55) employees of the workforce at the Lecours Lumber facility on the Constance Lake First Nation reserve. Thunderhouse Forest Services Inc. hired seven Aboriginal individuals in silvicultural work on the Hearst Forest. The MNR continued to fund (since 1999) an Aboriginal trapper liaison position. A second position, a trapper co-ordinator, was created and funded until March 2007 to assist in the development of the 2007-2017 Hearst FMP. Tembec, Outland Reforestation, Confederation College, and the MNR continued the First Nation forestry youth employment program. An estimated total of 109 Aboriginal people were employed in the forest industry in 2006/07.

Work on opportunities through the Northern Boreal Initiative is continuing and progressing quite well. Constance Lake First Nation has secured funding from two agencies for work on its Traditional Ecological Knowledge Project. MNR has also partnered with Constance Lake First Nation to build Eagle's Earth Cree and Ojibway Historical Centre, contributing $3 Million to a $10 Million destination tourism center that will market Native culture. The Grand Opening was held on September 6, 2007.

Kenora District

Management Unit: Kenora and Whiskey Jack Forests

There are 13 Aboriginal communities within the Kenora District: Wabauskang First Nation, Grassy Narrows First Nation, Iskatewizaagegan No. 39 Independent First Nation, Wabaseemoong First Nation, Ochiichagwe'Babigo'ining (Dalles) First Nation, Wauzhushk Onigum (Rat Portage) First Nation, Washagamis Bay First Nation, Shoal Lake No. 40 First Nation, Northwest Angle No. 33 First Nation, Northwest Angle No. 37 First Nation, Anishinaabeg of Naongashiing, Ojibways of Onegaming (Sabaskong), and Naotkamegwanning Anishinabe (Whitefish Bay).

Wabaseemoong Independent Nation holds a conifer allocation of 7,221 cubic metres per year on the Kenora Forest, and had a very productive year for timber harvesting on the licences issued to them. There was a total of 52,212 cubic metres (5,785 conifer and 46,427 hardwood) harvested in 2006/07. Iskatewizaagegan # 39 Independent First Nation holds a conifer license allocation of 2,407 cubic metres per year and harvested a total of 2,460 cubic metres (1,637 conifer and 823 hardwood) this year. Three First Nations have access to forest resource licenses, although Shoal Lake 40 has not exercised this opportunity in recent years.

Employment opportunities and related training for First Nation individuals in the Weyerhaeuser- iLevel mill have been provided.

Funding was provided to the Anishinaabeg of Kabapikotawangag Resource Council Inc in 2005/06 to help fund "Interest Based Negotiation Training" for community leadership that could assist with forestry negotiations. This funding was available in 2006/07.

Kirkland Lake District

Management Unit: Timiskaming Forest and part of the Iroquois Falls Forest (the latter administered by Cochrane District)

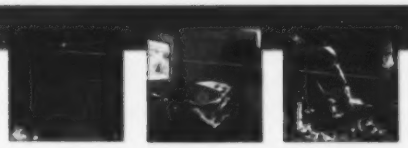
There are three Aboriginal communities within the Kirkland Lake District: Wahgoshig and Matachewan First Nations, and Beaverhouse Aboriginal Community.

Wahgoshig First Nation successfully negotiated harvest allocations with Tembec on the Iroquois Falls Forest (Iroquois Falls South portion) and harvested 50,403 cubic metres. A Matachewan First Nation member harvested approximately 34,250 cubic metres under a Domtar licence on the Timiskaming Forest. A horse logging company associated with the Matachewan First Nation harvested 5,500 cubic metres under the Timiskaming Forest Alliance licence through Domtar.

Wahgoshig, Beaverhouse and Matachewan communities each had an active member on the Kirkland Lake LCC.

Wahgoshig also accepted a tree planting contract for 450,000 trees (employing approximately 10 people) and a pre-commercial thinning contract for 96.1 hectares (employing about 8 people) from Timiskaming Forest Alliance Inc. Abitibi provided a further treeplanting contract for 278,175 trees. Matachewan First Nation accepted a tree planting contract for 408,000 trees (8 people) and a precommercial thinning contract for 85.5 hectares (8 people). Another contract was accepted by a Matachewan individual for 87.5 hectares of pre-commercial thinning (5 people), as well as planting 30,000 trees (2 people).

A working partnership agreement exists between Wahgoshig First Nation, Abitibi, and the MNR which provided training and education opportunities. An agreement between Wahgoshig First Nation and Tembec led to the training and hiring of two harvesting



supervisors. A student from Beaverhouse Aboriginal Community was hired and working on a 3 year program to increase interests and experience in resource management.

Significant progress was made on establishing an Aboriginal/industry partnership to harvest private lands under the District's All Trees Reserved to the Crown strategy. MNR was working with individual shareholders of the Timiskaming Forest Alliance to identify potential opportunities for working with local Aboriginal communities.

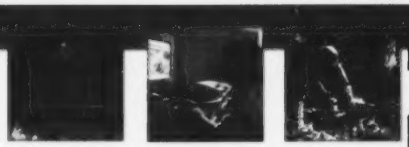
Nipigon District

Management Units: Black Sturgeon, Kenogami, Lake Nipigon, Ogoki, and Pic River Ojibway Forests, and Part of the Lakehead Forest (the latter administered by Thunder Bay District)

There are 16 Aboriginal communities located within Nipigon district. Four of them are north of the Area of the Undertaking and are not involved in forest management planning. The other eleven are: Pays Plat First Nation, Red Rock Band, Animbiigoo Zaagi'igan Anishinaabek, Biinjitiwaabik Zaaging Anishinaabek, Bingwi Neyaashi Anishinaabek (previously Sand Point First Nation), Ojibways of the Pic River First Nation, Long Lake #58 First Nation, Ginoogaming First Nation, Aroland First Nation, Eabametoong First Nation, Marten Falls First Nation and Poplar Point Ojibway Nation.

There are five additional Aboriginal communities that have traditional lands and/or interests in the Nipigon District: Kiashke Zaaging Anishinaabek, Fort William First Nation, Whitesand First Nation, Constance Lake First Nation, and the community of Namaygoosisagagun (formerly known as Collins).

Aboriginal communities in Nipigon District had a range of harvest opportunities and activities in fiscal 2006/07. Harvesting was conducted directly by the communities and/or through community-affiliated businesses. Allocations in some cases were granted to communities, and in other instances harvesting was done under contract to another industry organization.



The following is a list of prominent harvest opportunities:

Forest	Allocation	Harvest Volume	Aboriginal Community
Black Sturgeon	Overlapping licence	82,193 cubic metres	Kiashke Zaaging, through Niigaani Enterprises. Harvest partially under Bowater contract.
Kenogami	64,234 cubic metres	28,921 cubic metres	Constance Lake, through Amik Logging (successor to Mammamattawa Inc.); allocation under 5-year forest resource licence.
Lake Nipigon	80,000 cubic metres	48,233 cubic metres	Animbiigoo Zaagi'igan
	80,000 cubic metres	40,830 cubic metres	Biinjitiwaabik Zaaging
	80,000 cubic metres	72,779 cubic metres	Red Rock
Ogoki	25,457 cubic metres		Aroland
	25,658 cubic metres		Eabametoong
	36,387 cubic metres		Marten Falls, through Agwakeeng Development General Partner Inc.
Pic River Ojibway	40,660 cubic metres	40,660 cubic metres	Ojibways of Pic River, through Pic River Development Corporation

In support of forest management planning, twelve Aboriginal communities had Native Background Information Reports filed, in several cases for multiple forests. Several communities were represented on LCCs: Animbiigoo Zaagi'igan Anishinaabek on the LCCs for the Kenogami, Lake Nipigon and Ogoki forests; Ojibways of the Pic River for the Pic River Ojibway Forest; and the Red Rock Band participated on the Nipigon East area LCC. Namaygoosisagagun had a member (non-active) on the LCC for the Black Sturgeon Forest.

A number of communities had active representatives on forest management planning teams:

- Animbiigoo Zaagi'igan (Lake Nipigon and Ogoki forests)
- Biinjitiwaabik Zaaging (Black Sturgeon and Lake Nipigon forests)

- Ojibways of Pic River (Pic River Ojibway Forest)
- Kiashke Zaaging (Black Sturgeon Forest)
- Bingwi Neyaashi (Black Sturgeon and Lake Nipigon forests)
- Red Rock (Lake Nipigon Forest)
- Pays Plat (Lake Nipigon Forest)

There were approximately 4 additional instances where Aboriginal communities had members (non-active) on forest management planning teams.

Amik Logging planted 100,000 trees on the Lake Nipigon Forest. FMP funding was provided to the community to assist with values collection on the Lake Nipigon Forest. Pic River Development Corporation was also granted a contract for slash pile burning on the Pic River Ojibway Forest, although the work was largely limited by weather. A Kiashke Zaaging-affiliated company performed slash and chipper debris piling, site preparation and planting on the Black Sturgeon Forest. A member of that community, and one from Whitesand First Nation, participated in Bowater's spacing program. Red Rock First Nation harvested timber and managed slash removal in support of a research trial, and a related business was contracted to plant 500,000 trees. Aroland First Nation supplied equipment for Kenogami Forest road work. Members of Eabametoong First Nation had an industry contract for tree planting on the Ogoki Forest, employing 14 community members.

Whitesand First Nation youths continued to participate in Bowater's First Nation ranger program. During 2006/07, it is estimated that over 303 aboriginal people were working in forest industry jobs (mills and bush operations). Almost half of them were Ginoogaming people employed by the Long Lake Forest Products mill, where 80 percent of the workforce is Aboriginal.

MNR and industry members assisted Aboriginal communities with development of various forest-related opportunities. MNR continued to support Bingwi Neyaashi's cedar sawmill proposal by providing further direction and technical expertise. Following submission of an unsuccessful proposal for white birch wood supply, MNR encouraged Pays Plat First Nation to continue to work with SFL holders toward a business relationship for wood supply. MNR met with an Aroland community member to discuss the possibility of harvest opportunities on the Kenogami Forest; it was suggested that further discussion with an industry operator may be beneficial.

North Bay District

Management Units: Temagami Management Unit and Nipissing Forest

There are five Aboriginal communities within the North Bay District: Temagami First Nation, Nipissing First Nation, Dokis First Nation, Antoine Algonquins, and Mattawa/North Bay Algonquins. The Matchewan First Nation, although located outside of the District, has had a past interest in forest management activities in the District.

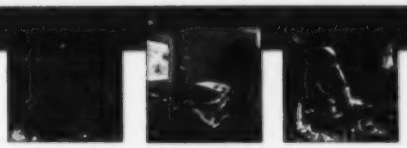
Temagami First Nation harvested one of their allocated blocks with the assistance of Goulard Lumber. Dokis First Nation had a five-year overlapping licence on the Nipissing Forest, but did not harvest any timber during the 2006/07 fiscal year due to an access (bridge) restriction. Each of the Nipissing First Nation, the Antoine Algonquin community, and the Mattawa/North Bay Algonquin community continued to operate under its licence and allocation. A Matachewan band member harvested as an entrepreneur in the Spanish Forest.

All six Aboriginal communities participated in forest management planning activities on the Nipissing Forest and/or the Temagami Management Unit. Temagami First Nation and the Antoine Algonquin community had representatives on the Nipissing Forest LCC.

An independent Temagami First Nation contractor accepted a contract to tend 170.7 hectares as part of the yellow birch restoration project. An independent Dokis and Nipissing First Nation contractor tended 418.7 hectares as part of the yellow birch restoration project.

Redbridge Forestry, an independent Mattawa/North Bay Algonquins contractor, tended 300+ hectares as part of the yellow birch restoration project. Redbridge Forestry also tended an additional 20.5 hectares, and planted 900,000 trees. The company holds a firewood licence to collect downed trees from the yellow birch restoration project, and has created three jobs in the firewood business.

Dokis First Nation coordinated a 3-day Natural Resource Awareness Workshop (funded by MNR), in which a number of First Nations participated. Two communities subsequently developed natural resources committees as a result of participating.



As part of Nipissing Forest Resource Management's Forest Stewardship Council certification efforts, representatives from the Mattawa North Bay Algonquins and the Antoine First Nation participated in the Annual Surveillance Audit.

Parry Sound District

Management Unit: French-Severn Forest

There are seven Aboriginal communities within or immediately adjacent to the Parry Sound District: Wasauksing First Nation, Henvey Inlet First Nation, Shawanaga First Nation, Magnetawan First Nation, Dokis First Nation, Wahta Mohawks, and Moose Deer Point First Nation. Further, the nearby Algonquins of Pikwakanagan (Golden Lake) have some involvement in the forest management planning process.

There have been continuing discussions with Dokis First Nation about an allocation which is directly adjacent to their territory. Although there are access complications, MNR, the SFL and Dokis continued to pursue the opportunity. Westwind Forest Stewardship Inc. (Westwind), the local SFL holder, allocated small fuel wood areas in close proximity to as many communities as possible in the current Plan. MNR initiated discussions with Henvey Inlet First Nation with respect to access to timber for personal and communal purposes. There were a limited number of community members involved in the harvest of Canada Yew.

The Aboriginal representative on the LCC stepped down for personal reasons, but a replacement is being actively recruited. The planning team has representatives from Magnetawan and Shawanaga First Nations, with other communities expressing interest in being kept informed of ongoing planning initiatives.

Parry Sound District supported two First Nation Forestry Program initiatives in 2006/07, including a recreation trail development project on and adjacent to Shawanaga First Nation, and the development of a FMP for Wahta Mohawks, which included Crown lands soon to be added to their reserve.

Four members of Shawanaga, Magnetawan and Wasauksing First Nations attended training for forest management planning preparedness. The District provided funding to help two members of Henvey Inlet and Magnetawan First Nations to attend the week-long National Convention in Ottawa of the National Aboriginal Forestry Association.

Westwind has been actively involved in increasing awareness and facilitating First Nations involvement in the local forest industry. Discussions included such topics as allocations, community and commercial fuel wood, non-timber forest products, silviculture opportunities and fire fighting. Talks were intended to foster relationships, provide information, and discuss opportunities for involvement in the local forest industry. There is limited involvement by First Nations' communities in the local forest industry: local economic drivers and limited capacity in these communities presents an obstacle to their participation. Westwind also continued to have an Aboriginal member on its board of directors.

Pembroke District

Management Unit: Ottawa Valley Forest

There is one Aboriginal community in the Pembroke District: Algonquins of Pikwakanagan First Nation (previously known as Golden Lake).

The Algonquins of Pikwakanagan First Nation were given an allocation of 4,442 cubic metres of timber in 2005/06; the same amount was available in 2006/07, but no harvest was commenced.

The forester for Makwa Community Development Corporation (Makwa is affiliated with Pikwakanagan) was hired by Ottawa Valley Forest Inc. periodically during six weeks to prepare forest operations prescriptions and access plans for harvest allocations. An Aboriginal contractor completed 13.6 hectares of stand improvement work.

MNR provided $2,500 in support funding towards the Algonquins of Pikwakanagan Earthwalker program. This program runs with the MNR's Stewardship Ranger Program, and is a capacity-building venture for Algonquin Youth. Ottawa Valley Forest Inc. provided $2,500 for the program, to fund operating expenses and to provide forest management work and learning opportunities. The MNR provided $4,250 funding for an Algonquin and a qualified lumber grader to work together for a five week period, in order to acquire experience for future opportunities in the lumber grading business.

Red Lake District

Management Units: Trout Lake, Red Lake, and part of the Whiskey Jack Forest (the latter administered by Kenora District)

No communities are located within the forest management units administered by Red Lake District. A number are located north of the Area of the Undertaking, and some communities are located within the Whiskey Jack Forest (administered by Kenora District). However, forest operations are carried out within traditional use areas of Cat Lake, Pikangikum, Wabauskang, Slate Falls, Grassy Narrows and Lac Seul, as well as local First Nation people living off reserve in the communities of Red Lake and Ear Falls.

Red Lake District received no inquiries about harvesting opportunities from First Nations during the 2006/07 fiscal year.

One Pikangikum individual acted as an advisor to the Red Lake FMP, attending planning team meetings (where possible) and attending workshops. Red Lake District has also been involved in extensive planning with Pikangikum First Nation regarding the development of a Sustainable Forestry Licence for the Whitefeather Forest through the Northern Boreal Initative.

Weyerhaeuser Inc. (Weyerhaeuser) invited all 5 First Nation communities adjacent to the Trout Lake Forest to participate on the FMP planning team. A Lac Seul First Nation community member actively participated on the Trout Lake Forest Management Planning Team, attending planning team meetings where possible and participating in training.

The Red Lake District maintained a dialogue with First Nations and the forest industry to ensure silvicultural contracting opportunities can be realized. Weyerhaeuser encouraged tree plant contractors to approach local First Nation communities with opportunities for summer work. Trappers have been contacted periodically regarding the potential harvest of nuisance beavers. No Aboriginal trappers have taken advantage of these opportunities.

Red Lake District will work with First Nations on education and training initiatives as required; in 2006/07, no education or training initiatives were requested by Aboriginal communities. Esker Logging has had ongoing discussions about training and employment opportunities with Pikangikum First Nation through the Whitefeather Initiative. Communities were invited to give Weyerhaeuser the names of interested students for a company-sponsored First Nation summer program through Confederation College.

Sault Ste. Marie District

Management Units: Algoma and Northshore Forests

There are five Aboriginal communities in the Sault Ste. Marie District: Serpent River First Nation, Ojibways of Garden River, Mississauga #8 First Nation, Thessalon First Nation, and Ojibways of Batchewana (Rankin). Although located outside of the District, the Sagamok Anishnawbek also had interests in forest management planning within the Sault Ste. Marie District during the 2006/07 forest management planning process.

A harvest approval of 1,959 hectares was approved on the Northshore Forest under an overlapping licence for the Aboriginal-owned Robinson Huron Forestry Company. On the Sudbury District portion of the Northshore Forest, a licence was issued to Sagamok Anishinabek First Nation for 882 hectares. Also, a harvest approval was issued to the Ten First Nations (a Sudbury District-based group) for 1,216 hectares.

Native Values Collection was pursued with Mississauga First Nation. Thessalon had one active member on the Northshore Forest management planning team. Michipicoten First Nation (located in Wawa District) had a representative on the forest management planning team for the Algoma Forest.

Thessalon First Nation is growing tree nursery stock. Sagamok Forest Management (a Sagamok Anishnawbek affiliate) accepted contracts from Northshore Forest Inc. for planting 58,000 trees and pre-commercial thinning of 100 hectares. The Northshore Tribal Council accepted a contract for 43 hectolitres of cone collection.

The Aboriginal Youth Worker Experience Program student placement with Serpent River First Nation continued. The Ojibways of Garden River continued to work with the SFL holder, Clergue Forest Management Inc., through the Ominik forestry pilot project. Training was provided in the following areas: logging, certification requirements, sawmill survey and needs analysis, employment opportunities, harvesting areas, and conditions of Forest Stewardship Council certification.

The First Nation forest management planning task team continued to meet with Northshore Forest Inc. to discuss opportunities in the forestry sector and conditions of Forest Stewardship Council certification. In addition, Northshore Tribal Council, Northshore Forest Inc., and the MNR met to discuss tree-marking certification opportunities, fuelwood areas, and the development of a First Nation ranger program similar to one in the Northwest Region.

The District also continued to meet with the local Métis community to discuss Condition 34 opportunities. Several meetings were held between Algoma Métis Loggers Inc, MNR and Clergue Forest Management Inc. to discuss harvest opportunities.

Sioux Lookout District

Management Units: Caribou and Lac Seul Forests

There are 14 Aboriginal communities within the Sioux Lookout District; five of them are considered to be affected by forest management activities: Lac Seul First Nation, Slate Falls First Nation, Mishkeegogamang First Nation, Cat Lake First Nation, and Ojibway Nation of Saugeen.

Lac Seul First Nation has an overlapping licence on the Lac Seul Forest with a harvest allocation of 36,258 cubic metres. McKenzie Forest Products (Mackenzie) and Slate Falls First Nation continue to negotiate a business arrangement regarding harvest opportunities adjacent to Slate Falls First Nation on the Lac Seul Forest. At the request of Slate Falls, Mackenzie prepared a salvage plan proposal for forest management activities of areas within the Slate Falls First Nation Reserve. The company continues to offer the community harvest opportunities in the Lac Seul Forest. The Ojibway Nation of Saugeen continued to indicate that they are not interested in Bowater's standing offer of a 20,000 cubic metres harvest contract.

Mishkeegogamang First Nation was involved in the development of the 2007/2008 Caribou Forest contingency plan. Mishkeegogamang's active member on the 2008-2018 Caribou Forest management planning team resigned, and efforts continued through the year to find a replacement. Although not within the Lac Seul Forest, Cat Lake First Nation has wished to remain part of the Lac Seul Forest management planning process. The Chief and Council of the Ojibway Nation of Saugeen continued to indicate that their community does not recognize the MNR forest management planning process, and did not participate in forest management discussions with the MNR.

McKenzie reimburses Lac Seul First Nation for grading under a road maintenance agreement. Mackenzie and Slate Falls First Nation continue to negotiate a business arrangement for road construction opportunities adjacent to Slate Falls First Nation on the Lac Seul Forest. The parties have completed the construction of enough components of the Slate Falls Road Project that there is now all-weather access to the community of Slate Falls. Mackenzie assisted Slate Falls through the development of funding proposals for road construction training.

Band members from Lac Seul First Nation continue to be employed by Mackenzie in woodlands operations, ferry services, and sawmilling. Training opportunities in ferry operation and forest operations exist as part of a Lac Seul First Nation/Mackenzie contractual arrangement. At least one member from Mishkeegogamang and one from the Ojibway Nation of Saugeen community participated in Bowater's First Nations ranger program. Two Saugeen band members worked in Bowater harvest operations.

Mishkeegogamang First Nation and Bowater continued to meet to discuss matters of community interest around forest management, and to further enhance the positive relationship that has been developed. An individual from Saugeen First Nation owns and sporadically operates a sawmill (with Crown and Reserve wood) producing lumber for local community and local mining needs. It is not known if this sawmill operated during the year.

Sudbury District

Management Units: Sudbury and Spanish Forests, and Part of the Northshore Forest (the latter administered by Sault Ste. Marie District)

There are ten Aboriginal communities within the Sudbury District: Sagamok Anishnawbek, Wikwemikong Unceded Indian Reserve, Wahnapitae First Nation, Whitefish River First Nation, Whitefish Lake First Nation, Zhiibaahaasing First Nation, Sheshegwaning First Nation, M'Chigeeng First Nation, Aundeck Omni Kaning First Nation, and Sheguiandah First Nation. Several communities from outside the District including: Dokis First Nation, Henvey Inlet First Nation, Serpent River First Nation, Mattagami First Nation, Brunswick House First Nation, Mississauga #8 First Nation and Temagami First Nation also had interests in forest management planning within the Sudbury District during the 2006/07 fiscal year.

A multi-year overlapping licence was issued to N'Swakamok (a company linked to 5 aboriginal communities in the area) for the harvest of 167,500 cubic metres on the Sudbury Forest. A harvest approval for 57,200 cubic metres was granted in 2006/07.

Sagamok Anishnawbek had active members on the Northshore and Spanish Forest management planning teams. Whitefish River First Nation had an active member on the Northshore Forest LCC and an active member on the Northshore Forest management planning team. Wikwemikong Unceded Indian Reserve had an active member on the Spanish and Sudbury Forest management planning teams. Wahnapitae First Nation also had a member on the Sudbury Forest management planning team.

Sagamok Forest Management (affiliated with the Sagamok Anishnawbek) accepted a tree planting contract for 58,000 trees and a pre-commercial thinning contract for 100 hectares from Northshore Forest Inc. In addition, a contract for 86.5 hectares of pre-commercial thinning on the Sudbury Forest was awarded to Sagamok. A contractor from Wikwemikong Unceded Indian Reserve accepted a pre-commercial thinning contract for 186 hectares from Domtar. M'Tiwa-ki Services and Thessalon First Nation accepted tree planting contracts from Vermillion Forest Management.

District staff provided technical and professional advice and information regarding forestry practices to Aboriginal people for implementation on reserve land.

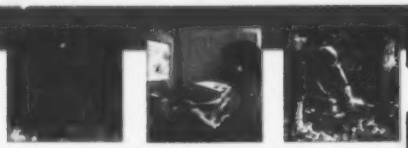
Thunder Bay District

Management Units: Armstrong, Dog River-Matawin, Lakehead, and Spruce River Forests, and Part of the Black Sturgeon Forest (the latter administered by Nipigon District)

There are six Aboriginal communities within the Thunder Bay District: Whitesand First Nation, Namaygoosisagagun (Collins), Lac des Mille Lacs First Nation, Fort William First Nation, Whitewater Lake First Nation, and Kiashke Zaaging Anishinaabek (Gull Bay). Bingwi Neyaashi Anishinaabek (Sand Point First Nation), Poplar Point First Nation and Red Rock Band also had interests in forest management within the Thunder Bay District during the 2006/07 fiscal year.

A logging company associated with the Whitesand First Nation was allocated 124,062 cubic metres of conifer and 26,908 cubic metres of hardwood during the 2006/07 fiscal year through overlapping licences; the Whitesand organization also had the opportunity during the year to operate as a harvest contractor for an industry member – Buchanan Forest Products Ltd. Niigaani Enterprises Inc. is owned by a Kiashke Zaaging Anishinaabek member and conducts logging operations on the Spruce River Forest and the Black Sturgeon Forest. In 2006/07 it held an approval for 23,963 cubic metres through an overlapping licence on the Spruce River Forest; however, no harvest was conducted in the year. The Red Rock Indian Band harvested 474 cubic metres on the Lakehead Forest under a 2005/06 forest resource licence which was renewed for 2006/07. Buchanan Forest Products Ltd. employed six Whitesand First Nation members and one Metis individual as part of their harvest operations.

MNR hired a consultant to assist Whitesand First Nation in updating the Native Background Information Report and values maps. The values maps were provided in early 2007; work



continues on updating the Native Background Information Report. Whitesand First Nation also chose to be involved in the forest management native consultation program. MNR engaged a consultant to work with Namaygoosisagagun to update their Native Background Information Report and values maps; work continued through year-end. Whitesand and Namaygoosisagagun members participated on the Armstrong Forest management planning team. Lac des Mille Lacs First Nation had a member on the Dog River-Matawin planning team.

Namaygoosisagagun had a representative on the Armstrong Forest LCC; efforts continue to recruit Whitesand First Nation representation. Lac des Mille Lacs had a member on both the Dog River-Matawin and the Spruce River Forest LCCs. Red Rock Indian Band had a representative on the new advisory committee for the Lakehead Forest.

Whitesand First Nation planted 494,160 trees, and a Whitesand-affiliated contractor was provided with contracts to plant a total of 614,628 trees. A Whitesand First Nation contractor completed 502 hectares of mechanical site preparation. Whitesand First Nation signed a contract for 1221 hectares of ground stocking surveys, 208 survival plot surveys and 100 survival plot establishment surveys; however, work never occurred. Whitesand was offered further ground tending and manual tending contracts, but declined. Approximately 24 Aboriginal individuals were employed by Whitesand First Nation and affiliated organizations in planting and site preparation during 2006/07.

Members from Namaygoosisagagun worked as tree-planters for a silviculture company during the 2006 summer plant. A Kiashke Zaaging Anishinaabek-affiliated business, Sustainable Forest Inc., conducts silviculture operations on the Spruce River Forest. The company completed 150 hectares of thinning on the Forest in 2006/07. Through Sustainable Forest Inc., some thinning jobs are made available to Kiashke Zaaging people. The SFL holder for the Lakehead Forest annually contracts Hurkett Cove Reforestation (Metis affiliated) to conduct tree planting. In the 2006/07 season 145,000 seedlings were planted. Hurkett Cove employs 6-15 people annually, from Dorion and the Red Rock Band.

Fort William First Nation leases a sawmill site and building to Bowater; the sawmill employs 30-50 First Nation people. An industry member continued to offer opportunity to employ and train First Nation and Metis people in its forest resource licence and silvicultural operations on the Armstrong Forest. The First Nation ranger program employed 14 youth and two crew leaders from nine different First Nations; they planted 100,000 trees and spaced 12 hectares on the Dog River-Matawin Forest during the summer of 2006.

Other discussions and initiatives underway during the year included:

- Whitesand First Nation and the MNR signed a Working Partnership Agreement which had been under discussion since 2005. Dialogue continued to facilitate a positive working relationship between parties.
- As part of an enhanced/ongoing consultation initiative, Namaygoosisagagun meets with Domtar annually to discuss harvest allocations and renewal areas; they also meet with the MNR twice per year as part of the enhanced consultation process.
- Fort William First Nation continued to work with the MNR in the development of a proposed optimization and biomass plant. Fort William First Nation is a member of Superior North Loggers Inc., which is the majority owner of Greenmantle Forest Inc., SFL holder for the Lakehead Forest.

Timmins District

Management Units: Romeo Malette, Nighthawk, and the former ShiningTree part of the Timiskaming Forest (the latter administered by Kirkland Lake District)

Mattagami First Nation is the only Aboriginal communities with members located within the Timmins district. Flying Post First Nation has reserve lands in the District, but all members live off-reserve in Nipigon, and do not take an active role in forest management activities. Although located outside of the District, Matachewan First Nation, Moose Cree First Nation, Wahgoshig First Nation and Taykwa Tagamou Nation also had an interest in forest management planning within the Timmins District during the 2006/07 fiscal year.

Mattagami First Nation normally harvests about 50,000 cubic metres on the Romeo Malette Forest, but did not harvest during the year due to a mill shutdown. Mattagami sub-contractors worked for Wahgoshig First Nation, harvesting on the Iroquois Falls Forest (Cochrane District). Wahgoshig First Nation harvested approximately 125,000 cubic metres on the Nighthawk Forest for Tembec.

MNR supported development of an Aboriginal Background Information Report and the Report on the Protection of Identified Aboriginal Values for the Nighthawk and Romeo Malette forests for the Mattagami First Nation. Mattagami had active members on the Romeo Malette and Nighthawk forests LCCs, as well as the forest management planning teams for those forests and the Timiskaming Forest. Matachewan First Nation had active members on

the LCCs for the Romeo Malette and Nighthawk forests LCCs, as well as the forest management planning teams for those forests and the Timiskaming Forest. Wahgoshig had active members on the Romeo Malette, Nighthawk, and Timiskaming forest management planning teams. Taykwa Tagamou had active members on the Nighthawk and Romeo Malette forest management planning teams.

On the Timiskaming Forest, Matachewan First Nation planted 329,700 trees (employing 10 people), carried out a pre-commercial thinning contract for 329 hectares (10 people); an individual entrepreneur planted 485,750 trees (12 people) and pre-commercial thinned 250 hectares (12 people). Wahgoshig planted 250,000 trees for Timiskaming Forest Alliance Inc. on the Timiskaming Forest, employing 15 people. On the Nighthawk Forest, Wahgoshig was awarded a treeplanting contract for 550,000 trees (employing 15 people) and a pre-commercial thinning contract for 30 hectares (employing 5 people).

The MNR supported First Nation forestry liaison positions for Mattagami, Matachewan and Wahgoshig First Nations, the provision of a 2-day Mattagami Geographic Information Systems training course for about 10 participants, and the delivery of an education and capacity-building workshop. Through agreements with Tembec for support of training and education, Wahgoshig First Nation has been able to train and hire 2 harvest supervisors. Taykwa Tagamou also had access to financial assistance for training and education through agreements with Tembec. Tembec continued to work with Taykwa Tagamou-affiliated Island Falls Forestry to create additional employment, as well.

Other key efforts with Aboriginal communities included:

- MNR's support for the formation of the Mattagami First Nation Resource Council, which will address resource management related issues.
- Tembec continued to work on Working Relationships Agreements and Long-Term Forestry Agreements with both Taykwa Tagamou and Wahgoshig people.

Wawa District

Management Units: Big Pic, Black River, Magpie, Nagagami, White River and part of the Algoma Forest (the latter administered by Sault Ste. Marie District)

There are five Aboriginal communities within the Wawa District: Ojibways of Pic River, Pic Mobert First Nation, Missanabie Cree First Nation, Hornepayne First Nation, and

Michipicoten First Nation. Constance Lake First Nation also had an interest in forest management planning within the Wawa District during the 2006/07 fiscal year.

The Ojibways of Pic River harvested approximately 16,850 cubic metres in 2006/07 as a contract harvester on the Big Pic, and the same amount through an overlapping licence on the Black River Forest. They also hold an allocation of 50,000 cubic metres on the White River Forest.

Pic Mobert First Nation had discussions with Buchanan Forest Products Ltd. and Marathon Pulp and Paper Inc. regarding harvest contracts, overlapping licences, and tree planting or thinning contracts. Pic Mobert had 25,000 cubic metres set aside in the White River Forest FMP for the community, should it complete negotiations to secure an overlapping licence. On the White River Forest, Pic River Development Corporation, Domtar, and the International Woodworkers of America have entered into arbitration regarding an overlapping licence dispute.

Several Aboriginal communities had active members on LCCs:

- Ojibways of Pic River (Big Pic, Black River and White River forests)
- Pic Mobert First Nation (Big Pic, Black River and White River forests)
- Hornepayne First Nation (Nagagami Forest; non-active)
- Michipicoten First Nation (Magpie and Algoma forests, the latter being administered through Sault Ste. Marie District)
- Missanabie Cree First Nation (Magpie Forest)

Similarly, a number of communities were represented on forest management planning teams:

- Ojibways of Pic River (Black River and White River forests)
- Pic Mobert First Nation (Big Pic, Black River and White River forests)
- Hornepayne First Nation (Nagagami Forest)
- Michipicoten First Nation (Magpie Forest)
- Missanabie Cree First Nation (Magpie Forest; non-active)

The Ojibways of Pic River had a contract with MNR to do White River Forest values collection and the Aboriginal Background Information Report. Pic Mobert completed a contract to

digitize all values information; it also had a contract with MNR for values collection on the White River Forest, and to complete the Aboriginal Background Information Report.

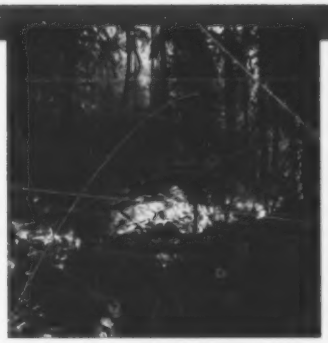
During 2006/07, approximately 35 individuals from the Ojibways of Pic River, 25 from the Hornepayne First Nation and two from the Michipicoten First Nation were engaged in forest industry employment.

The Ojibways of Pic River continued to explore opportunities on the Big Pic Forest and the Black River Forest, including the opportunity to increase the community's annual harvesting allocation.

Pic Mobert First Nation assisted with consultations in a feasibility study of existing opportunities on the Big Pic, Black River, and White River forests; the community had hired a consultant to lead the work in 2005/06. MNR assisted Pic Mobert in exploring funding and the logistics of hiring their own forester/resource individual for the Band.

Missanabie Cree First Nation, Wawa District MNR, Chapleau District MNR, and Tembec continued working under a Tripartite Forestry Agreement. This initiative provides training in forest management planning, regulatory requirements, measurement and scaling of forest resources, and forest technology for members of the Missanabie Cree First Nation. Mentoring opportunities are also provided by the MNR and Tembec. The MNR also identified areas with potential future forestry opportunities for the community.

There has been correspondence between the forest industry and Constance Lake First Nation's forest company, concerning the Constance Lake First Nation's interest in potential opportunities in the Big Pic and Nagagami forests.



Appendix 1 - Key to Management Units (April 1, 2006)

(Designated under the Crown Forest Sustainability Act, Section 7)

MU #	MU Name (* new for 2006)	Status	Lead District
Northeast			
615	Algoma Forest	SFL	Sault Ste. Marie
067	Big Pic Forest	SFL	Wawa
370	Black River Forest	SFL	Wawa
375	Cochrane-Moose River	CR	Cochrane
438	Gordon Cosens Forest	SFL	Hearst
601	Hearst Forest	SFL	Hearst
012	Iroquois Falls Forest	SFL	Cochrane
565	Magpie Forest	SFL	Wawa
509	Martel Forest *	SFL	Chapleau
390	Nagagami Forest	SFL	Wawa
150	Nighthawk Forest	SFL	Timmins
754	Nipissing Forest	SFL	North Bay
680	Northshore Forest	SFL	Sault Ste. Marie
421	Pineland Forest *	SFL	Chapleau
930	Romeo Malette Forest	SFL	Timmins
040	Smooth Rock Falls Forest	SFL	Cochrane
210	Spanish Forest	SFL	Sudbury
869	Sudbury Forest	SFL	Sudbury
898	Temagami	CR	North Bay
280	Timiskaming Forest *	SFL	Kirkland Lake
060	White River Forest	SFL	Wawa
Northwest			
444	Armstrong Forest	SFL	Thunder Bay
178	Black Sturgeon Forest	SFL	Nipigon
175	Caribou Forest	SFL	Sioux Lookout
405	Crossroute Forest	SFL	Fort Frances
177	Dog River-Matawin Forest	SFL	Thunder Bay
535	Dryden Forest	SFL	Dryden
230	English River Forest	SFL	Dryden
350	Kenogami Forest	SFL	Nipigon
644	Kenora Forest	SFL	Kenora
702	Lac Seul Forest	SFL	Sioux Lookout
260	Lake Nipigon Forest	SFL	Nipigon
796	Lakehead Forest	SFL	Thunder Bay
415	Ogoki Forest	SFL	Nipigon
851	Pic River Ojibway Forest	SFL	Nipigon
840	Red Lake Forest	SFL	Red Lake
853	Sapawe Forest	SFL	Fort Frances
030	Spruce River Forest	SFL	Thunder Bay
120	Trout Lake Forest	SFL	Red Lake
130	Wabigoon Forest	SFL	Dryden
490	Whiskey Jack Forest	SFL	Kenora
Southern			
451	Algonquin Park Forest	AFA	Algonquin Park
220	Bancroft-Minden Forest	SFL	Bancroft
360	French-Severn Forest	SFL	Parry Sound
140	Mazinaw-Lanark Forest	SFL	Bancroft
780	Ottawa Valley Forest	SFL	Pembroke
990	Southern Ontario		various

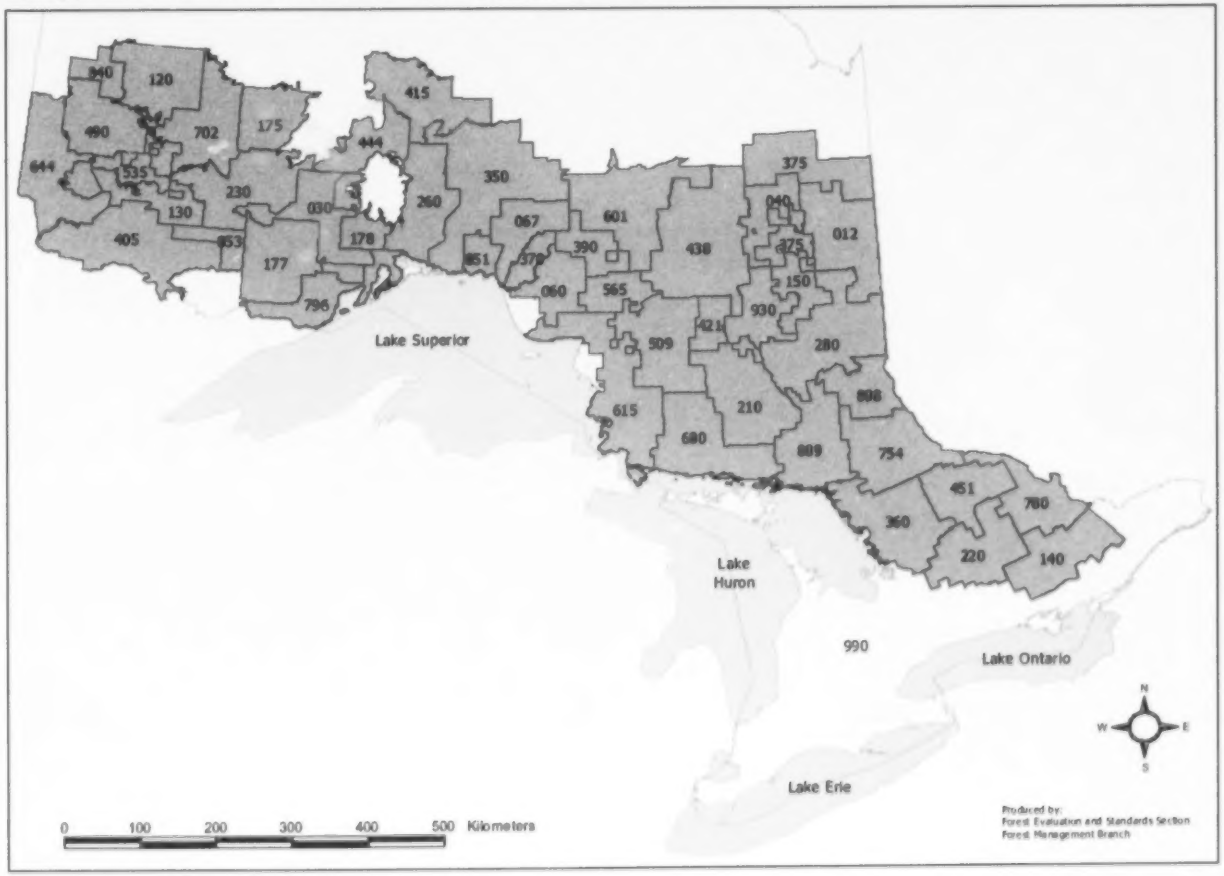
Status:

SFL	Sustainable Forest Licence
CR	Crown Managed
AFA	Algonquin Forest Authority

April 1, 2006 Changes

New MU Name	Previous MU Names (###)
Pineland Forest (421)	includes part of former Pineland-Martel Forest (765)
Martel Forest (509)	includes part of former Pineland-Martel Forest (765) includes all of former Superior Forest (508)
Timiskaming Forest (280)	Timiskaming Forest (610) Shiningtree Forest (868)

Appendix 1
Management Units in the Area of the Undertaking and Forest Management Responsibilities (Crown Lands) April 1, 2006



Appendix 1 - Key to Management Units (April 1, 2006)

(Designated under the Crown Forest Sustainability Act, Section 7)

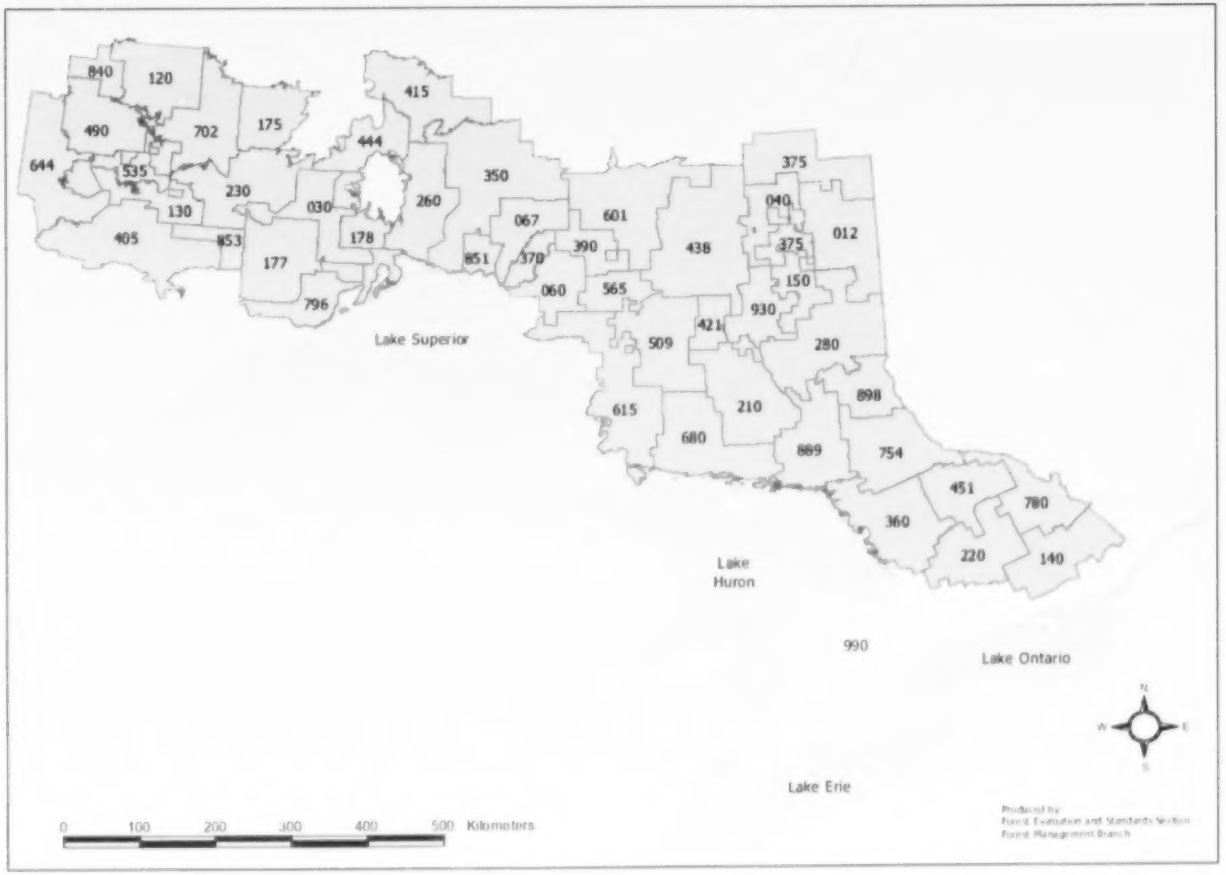
MU #	MU Name (* - new for 2006)	Status	Lead District
Northeast			
615	Algoma Forest	SFL	Sault Ste. Marie
067	Big Pic Forest	SFL	Wawa
370	Black River Forest	SFL	Wawa
375	Cochrane-Moose River	CR	Cochrane
438	Gordon Cosens Forest	SFL	Hearst
601	Hearst Forest	SFL	Hearst
012	Iroquois Falls Forest	SFL	Cochrane
565	Magpie Forest	SFL	Wawa
509	Martel Forest *	SFL	Chapleau
390	Nagagami Forest	SFL	Wawa
150	Nighthawk Forest	SFL	Timmins
754	Nipissing Forest	SFL	North Bay
680	Northshore Forest	SFL	Sault Ste. Marie
421	Pineland Forest *	SFL	Chapleau
930	Romeo Malette Forest	SFL	Timmins
040	Smooth Rock Falls Forest	SFL	Cochrane
210	Spanish Forest	SFL	Sudbury
889	Sudbury Forest	SFL	Sudbury
898	Temagami	CR	North Bay
280	Timiskaming Forest *	SFL	Kirkland Lake
060	White River Forest	SFL	Wawa
Northwest			
444	Armstrong Forest	SFL	Thunder Bay
178	Black Sturgeon Forest	SFL	Nipigon
175	Caribou Forest	SFL	Sioux Lookout
405	Crossroute Forest	SFL	Fort Frances
177	Dog River-Matawin Forest	SFL	Thunder Bay
535	Dryden Forest	SFL	Dryden
230	English River Forest	SFL	Dryden
350	Kenogami Forest	SFL	Nipigon
644	Kenora Forest	SFL	Kenora
702	Lac Seul Forest	SFL	Sioux Lookout
260	Lake Nipigon Forest	SFL	Nipigon
796	Lakehead Forest	SFL	Thunder Bay
415	Ogoki Forest	SFL	Nipigon
851	Pic River Ojibway Forest	SFL	Nipigon
840	Red Lake Forest	SFL	Red Lake
853	Sapawe Forest	SFL	Fort Frances
030	Spruce River Forest	SFL	Thunder Bay
120	Trout Lake Forest	SFL	Red Lake
130	Wabigoon Forest	SFL	Dryden
490	Whiskey Jack Forest	SFL	Kenora
Southern			
451	Algonquin Park Forest	AFA	Algonquin Park
220	Bancroft-Minden Forest	SFL	Bancroft
360	French-Severn Forest	SFL	Parry Sound
140	Mazinaw-Lanark Forest	SFL	Bancroft
780	Ottawa Valley Forest	SFL	Pembroke
990	Southern Ontario	various	

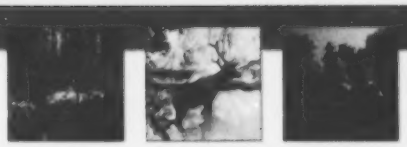
Status		
	SFL	Sustainable Forest Licence
	CR	Crown Managed
	AFA	Algonquin Forest Authority

April 1, 2006 Changes

New MU Name	Previous MU Names (###)
Pineland Forest (421)	includes part of former Pineland-Martel Forest (765)
Martel Forest (509)	includes part of former Pineland-Martel Forest (765) includes all of former Superior Forest (508)
Timiskaming Forest (280)	Timiskaming Forest (610) Shiningtree Forest (868)

Appendix 1
Management Units in the Area of the Undertaking and Forest Management Responsibilities (Crown Lands) April 1, 2006



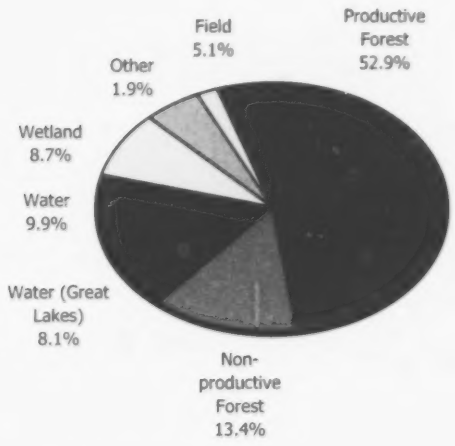


Appendix 2 - Total Provincial Area by Satellite Classifications, 2006[1]

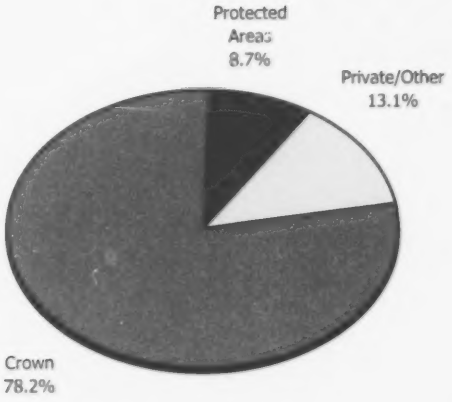
Area in thousands of hectares

	Total Provincial Area				Area of the Undertaking (AOU)			
		Protected				Protected		
Land Class	Crown	Areas	Other	Total	Crown	Areas	Other	Total
Non-forested Land/Water								
Water (Great Lakes)	8,517.3	169.8	0.0	8,687.1	0.0	0.0	0.0	0.0
Water	9,118.0	1,559.2	0.0	10,677.2	4,833.1	883.9	0.0	5,716.9
Wetland	8,175.7	1,065.6	130.9	9,372.2	271.0	60.7	34.0	365.7
Rock	258.6	105.0	183.3	546.8	103.9	58.3	115.1	277.3
Field/Agriculture	27.5	5.6	5,501.3	5,534.4	16.1	0.8	571.1	587.9
UCL	56.5	2.8	536.7	596.0	41.9	2.0	148.2	192.1
Other	480.0	337.2	93.6	910.8	111.7	31.5	36.6	179.9
Subtotal:	26,633.6	3,245.4	6,445.7	36,324.6	5,377.7	1,037.2	905.0	7,319.8
Non-productive Forest								
Swamp	1.2	1.8	118.4	121.4	0.0	0.3	19.5	19.9
Treed Bog & Fen	12,757.0	1,114.3	391.8	14,263.1	1,337.2	167.3	170.8	1,675.2
Subtotal:	12,758.2	1,116.1	510.2	14,384.5	1,337.2	167.6	190.3	1,695.1
Productive Forest								
Dense Deciduous	3,235.0	524.9	1,912.1	5,672.0	2,942.7	295.6	1,174.8	4,413.1
Dense Conifer	13,513.7	1,426.7	1,069.8	16,010.1	7,702.8	949.4	740.1	9,392.3
Mixed Forest	11,617.5	1,534.6	2,657.1	15,809.2	9,463.0	1,011.3	1,940.7	12,415.0
Sparse Forest	11,350.6	1,109.9	1,206.3	13,666.7	4,517.6	587.7	913.5	6,018.7
Disturbance - Harvest	2,042.1	32.9	189.9	2,264.9	2,040.8	32.1	162.5	2,235.5
Disturbance - Fire	1,893.8	236.7	42.2	2,172.7	207.1	74.0	4.7	285.9
Regenerating Forest	1,097.4	99.1	52.9	1,249.4	23.2	5.6	4.2	33.0
Subtotal:	44,750.0	4,964.8	7,130.2	56,845.0	26,897.3	2,955.7	4,940.5	34,793.5
All Forest:	57,508.2	6,081.0	7,640.4	71,229.5	28,234.5	3,123.3	5,130.8	36,488.6
Grand Total:	**84,141.7**	**9,326.3**	**14,086.1**	**107,554.2**	**33,612.2**	**4,160.5**	**6,035.8**	**43,808.4**

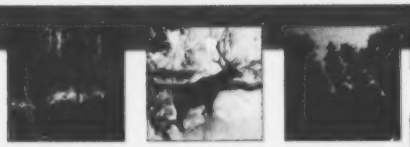
[1] The information reported in this appendix is updated on a 5 year cycle



Total Provincial Area by Land Class

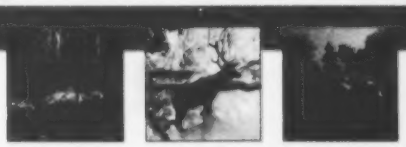


Total Provincial Area by Ownership



Appendix 3 - Forest Management Plans Approved for Implementation in 2006, and Plans Scheduled for Approval and Implementation in 2007, 2008, 2009, and 2010

MU #	MU Name (current or proposed)	Lead District	Region
	Plans Scheduled for Implementation in 2006		
220	Bancroft-Minden Forest	Bancroft	S
370	Black River Forest	Wawa	NE
178	Black Sturgeon Forest	Nipigon	NW
535	Dryden Forest	Dryden	NW
644	Kenora Forest	Kenora	NW
702	Lac Seul Forest	Sioux Lookout	NW
260	Lake Nipigon Forest	Nipigon	NW
509	Martel Forest	Chapleau	NE
140	Mazinaw-Lanark Forest	Bancroft	S
390	Nagagami Forest	Wawa	NE
780	Ottawa Valley Forest	Pembroke	S
851	Pic River Ojibway Forest	Nipigon	NW
421	Pineland Forest	Chapleau	NE
030	Spruce River Forest	Thunder Bay	NW
280	Timiskaming Forest	Kirkland Lake	NE
	Plans Under Preparation and Scheduled for Implementation in 2007		
067	Big Pic Forest	Wawa	NE
175	Caribou Forest	Sioux Lookout	NW
405	Crossroute Forest	Fort Frances	NW
601	Hearst Forest	Hearst	NE
796	Lakehead Forest	Thunder Bay	NW
930	Romeo Malette Forest	Timmins	NE
Note:	The plans being prepared for the Caribou Forest (175) and the Romeo Malette Forest (930) for implementation in 2007 are one year and two year contingency plans (respectively).		
	Plans Commencing Preparation in 2006 and Scheduled for Implementation in 2008		
175	Caribou Forest	Sioux Lookout	NW
375	Cochrane-Moose River	Cochrane	NE
150	Nighthawk Forest	Timmins	NE
415	Ogoki Forest	Nipigon	NW
840	Red Lake Forest	Red Lake	NW
130	Wabigoon Forest	Dryden	NW
060	White River Forest	Wawa	NE
	Plans Scheduled for Renewal In 2009		
177	Dog River-Matawin Forest	Thunder Bay	NW
230	English River Forest	Dryden	NW
360	French-Severn Forest	Parry Sound	S
565	Magpie Forest	Wawa	NE
754	Nipissing Forest	North Bay	NE
930	Romeo Malette Forest	Timmins	NE
898	Temagami	North Bay	NE
120	Trout Lake Forest	Red Lake	NW
490	Whiskey Jack Forest	Kenora	NW
	Plans Scheduled for Renewal In 2010		
615	Algoma Forest	Sault Ste. Marie	NE
451	Algonquin Park Forest	Algonquin Park	S
444	Armstrong Forest	Thunder Bay	NW
438	Gordon Cosens Forest	Hearst	NE
012	Iroquois Falls Forest	Cochrane	NE
350	Kenogami Forest	Nipigon	NW
680	Northshore Forest	Sault Ste. Marie	NE
853	Sapawe Forest	Fort Frances	NW
040	Smooth Rock Falls Forest	Cochrane	NE
210	Spanish Forest	Sudbury	NE
889	Sudbury Forest	Sudbury	NE



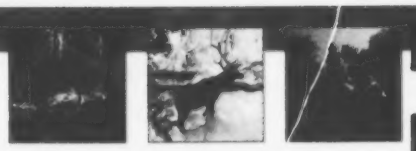
Appendix 4
Forest-dependent Communities in Ontario (ranked by percentage of forestry workers)

Census Subdivision	Subdivision Type	2006[1] Population	Labour Force	Forestry Workers	Percent Forestry
Dubreuilville	Township	773	450	280	62.2%
James	Township	414	195	90	46.2%
White River	Township	841	580	245	42.2%
Red Rock	Township	1,063	460	190	41.3%
Dorion	Township	379	250	95	38.0%
Hilton	Township	243	55	20	36.4%
Terrace Bay	Township	1,625	805	290	36.0%
Ear Falls	Township	1,153	715	230	32.2%
Constance Lake 92	Reserve	702	220	70	31.8%
Greenstone	Municipality	4,906	2,680	850	31.7%
Smooth Rock Falls	Town	1,473	660	195	29.5%
Mattice-Val Cote	Township	772	375	110	29.3%
Ignace	Township	1,431	780	225	28.8%
Nipigon	Township	1,752	790	215	27.2%
Atikokan	Township	3,293	1,650	445	27.0%
Brudenell, Lyndoch and Raglan	Township	1,497	765	205	26.8%
South Algonquin	Township	1,253	610	160	26.2%
Calvin	Township	608	240	60	25.0%
Baldwin	Township	554	245	60	24.5%
Hearst	Town	5,620	3,020	730	24.2%
Opasatika	Township	280	145	35	24.1%
Cochrane, Unorganized, North Part	Unorganized	2,447	1,230	295	24.0%
Iroquois Falls	Town	4,729	2,050	465	22.7%
Papineau-Cameron	Township	1,058	515	115	22.3%
Chapleau	Township	2,354	1,255	275	21.9%
Fauquier-Strickland	Township	568	290	60	20.7%
Mattawa	Town	2,003	785	160	20.4%
Cochrane	Town	5,487	2,750	555	20.2%

1 Source: Statistics Canada 2006 Census of Population

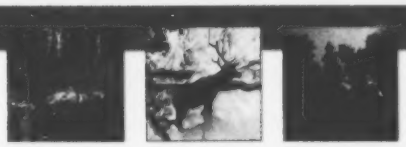
Notes:
Data for communities above 20% Forestry Workers in Labour Force shown.
Data calculated from only those communities with population greater than or equal to 240.
Forestry Workers is an aggregate of the following 4 digit classification:

Code	Description
1131	Timber tract operations
1132	Forest nurseries and gathering of forest products
1133	Logging
1153	Support activities for forestry
3211	Sawmills and wood preservation
3212	Veneer, plywood and engineered wood product manufacturing
3219	Other wood product manufacturing
3221	Pulp, paper and paperboard mills
3222	Converted paper product manufacturing



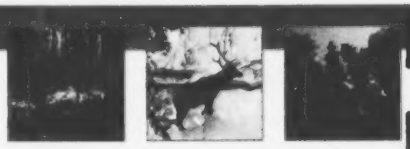
Appendix 5 Forest Renewal Charges for 2006-07 ($ per cubic metre)

		Rates Charged by Tree Species or Groups of Species						
MNR Region	Management Unit Name	White & Red Pine Category 1	White & Red Pine Category 2	Hemlock / Cedar	Other Conifer	Poplar / White Birch	Hardwood Grade 1	Hardwood Grade 2
Northwest	Armstrong Forest							
	Apr. 1, 2006 - Sep. 30, 2006	5.00	5.00	5.00	5.00	0.50	0.50	0.50
	Oct. 1, 2006 - Mar. 31, 2007	5.00	5.00	5.00	5.00	1.00	0.50	0.50
	Black Sturgeon Forest	11.00	11.00	6.00	6.00	0.75	8.00	1.50
	Caribou Forest	11.00	11.00	3.00	3.00	0.75	8.00	1.50
	Crossroute Forest	9.00	9.00	-	5.20	0.50	1.50	0.50
	Dog River - Matawin Forest	11.00	11.00	4.50	4.50	0.75	8.00	1.50
	Dryden Forest	5.00	5.00	5.00	5.00	2.00	2.00	2.00
	English River Forest	11.00	11.00	6.00	4.00	0.75	8.00	1.50
	Kenogami Forest	11.00	11.00	6.00	6.00	1.00	1.00	1.00
	Kenora Forest	5.00	5.00	3.00	3.00	0.50	8.00	1.50
	Lac Seul Forest	11.00	11.00	0.50	0.50	1.00	8.00	1.50
	Lake Nipigon Forest	3.75	3.75	3.75	3.75	0.50	8.00	1.50
	Lakehead Forest	4.00	4.00	-	4.00	0.50	0.50	0.50
	Ogoki Forest	11.00	11.00	6.00	3.00	1.00	8.00	1.50
	Pic River Ojibway Forest	11.00	11.00	2.00	2.00	0.50	8.00	1.50
	Red Lake Forest	1.00	1.00	1.00	3.50	0.50	8.00	1.50
	Sapawe Forest	6.00	6.00	2.00	6.00	0.50	8.00	1.50
	Spruce River Forest	5.00	5.00	5.00	5.00	1.00	1.00	1.00
	Trout Lake Forest	11.00	11.00	2.00	2.00	0.50	8.00	1.50
	Wabigoon Forest	11.00	11.00	1.00	1.00	0.25	1.00	1.00
	Whiskey Jack Forest	11.00	11.00	5.00	5.00	1.40	8.00	1.50
Northeast	Algoma Forest	5.12	5.12	0.80	3.33	0.32	4.00	0.64
	Big Pic Forest							
	Apr. 1, 2006 - Nov. 30, 2006	11.00	6.00	6.00	6.00	0.50	8.00	1.50
	Dec. 1, 2006 - Mar. 31, 2007	11.00	6.00	6.00	-	0.50	8.00	1.50
	Black River Forest	11.00	11.00	6.00	0.50	1.00	8.00	1.50
	Cochrane - Moose River Forest	11.00	6.00	0.50	-	-	8.00	1.50
	Nighthawk Forest	4.36	4.36	4.36	4.36	0.50	0.50	0.50
	Gordon Cosens Forest	11.00	11.00	1.00	3.42	0.80	8.00	1.50
	Hearst Forest	11.00	11.00	1.00	7.50	0.60	8.00	1.50
	Iroquois Falls Forest							
	Apr. 1, 2006 - Feb. 28, 2007	11.00	11.00	2.00	6.00	0.76	8.00	1.50
	Mar. 1, 2007 - Mar. 31, 2007	11.00	11.00	2.00	5.00	0.76	8.00	1.50
	Magpie Forest	11.00	11.00	0.50	0.50	1.00	8.00	1.50
	Martel Forest	11.00	11.00	1.00	4.50	0.45	8.00	1.50
	Nagagami Forest	11.00	11.00	1.00	4.00	0.50	8.00	1.50
	Nipissing Forest	11.00	6.00	0.50	6.00	0.50	8.00	1.50
	Northshore Forest	7.24	7.24	0.50	4.00	0.50	8.00	0.50
	Pineland Forest	11.00	11.00	0.60	4.75	0.60	8.00	1.50
	Romeo Malette Forest	6.00	6.00	4.30	5.53	1.32	8.00	1.50
	Smooth Rock Falls Forest	11.00	11.00	0.50	3.34	0.50	8.00	1.50
	Spanish Forest	10.00	10.00	1.00	4.50	0.50	8.00	1.50
	Sudbury Forest	11.00	6.00	0.50	6.00	0.50	8.00	1.50
	Temagami	11.00	6.00	6.00	5.67	0.50	8.00	1.50
	Timiskaming Forest							
	Apr. 1, 2006 - Jun. 30, 2006	11.00	11.00	4.80	4.80	0.40	8.00	1.50
	Jul. 1, 2006 - Mar. 31, 2007	11.00	11.00	4.80	3.80	0.40	8.00	1.50
	White River Forest	11.00	11.00	1.00	3.75	0.50	8.00	1.50
Southern	Algonquin Park Forest	4.75	4.75	0.10	0.10	0.10	4.75	0.10
	Bancroft - Minden Forest	11.50	0.05	0.05	0.05	0.05	8.00	0.05
	French - Severn Forest	11.00	2.00	2.00	6.00	2.00	8.00	1.00
	Mazinaw - Lanark Forest	11.00	2.15	2.15	2.15	2.15	9.00	3.00
	Ottawa Valley Forest	11.00	2.00	6.00	6.00	1.00	8.00	2.00
	Southern Ontario	12.50	1.50	6.00	6.00	1.50	8.00	1.50



Appendix 6 Acronyms Used in this Report

AOU	Area of the Undertaking
ANSI	Area of Natural and Scientific Interest
BFOLDS	Boreal Forest Landscape Dynamics Simulator
B.t.	Bacillus thuringiensis
CFSA	Crown Forest Sustainability Act
EA	Environmental Assessment
ELC	Ecological Land Classification
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual for Ontario's Crown Forests
FOIP	Forest Operations Information Program
FRI	Forest Resources Inventory
FRL	Forest Resource Licence
FSPF	Forest Sector Prosperity Fund
FTG	Free-To-Grow
LCC	Local Citizens Committee
LGP	Loan Guarantee Program
MFTIP	Managed Forest Tax Incentive Program
MNR	Ministry of Natural Resources (Ontario)
MOE	Ministry of Environment (Ontario)
MOA	Memorandum of Agreement
NDPE	Forest Management Guide for Natural Disturbance Pattern Emulation
ONREM	Ontario Natural Resources Economic Model
OnTAP	Ontario Terrestrial Assessment Program
RSA	Resource Stewardship Agreement
SFL	Sustainable Forest Licence
SFMM	Strategic Forest Management Model
TOF	Trees Ontario Foundation



Appendix 7 Documents Referenced in this Report

Most of the Ministry of Natural Resources publications referred to below are available online at:

http://www.mnr.gov.on.ca/en/Business/Forests/Publication/index.html

Most of the Provincial Acts referred to below are available online at:

http://www.e-laws.gov.on.ca/

Conservation Land Act. Statutes of Ontario, R.S.O. 1990, Chapter C.28.

Crown Forest Sustainability Act. Statutes of Ontario, S.O. 1994, Chapter 25 and Ontario Regulation 167/95.

Crown Land Use Policy Atlas. Ministry of Natural Resources, (online). (http://crownlanduseatlas.mnr.gov.on.ca/)

Declaration Order Regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario. Ministry of Environment, June 2003, as amended (MNR-71/2).

Environmental Assessment Act. Statutes of Ontario, R.S.O. 1990, Chapter E.18 and Regulations.

Forest Information Manual. Ministry of Natural Resources, 2001. 400 p.

Forest Management Guide for Cultural Heritage Values. Ministry of Natural Resources, 2007. 75 p.

Forest Management Guide for Natural Disturbance Pattern Emulation (Version 3.1). Ministry of Natural Resources, 2002. 29 p.

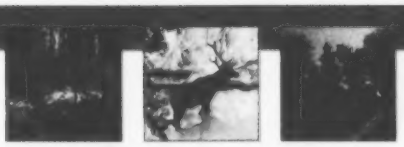
Forest Management Guidelines for the Conservation of Woodland Caribou: A Landscape Approach. Ministry of Natural Resources, 1999. 70 p.

Forest Management Guidelines for the Protection of the Physical Environment. Ministry of Natural Resources, 1997. 42 p.

Forest Management Guidelines for the Provision of Marten Habitat. Ministry of Natural Resources, 1996. 27 p.

Forest Management Guidelines for the Provision of Pileated Woodpecker Habitat. Ministry of Natural Resources, 1996. 26 p.

Forest Management Planning Manual for Ontario's Crown Forests. Ministry of Natural Resources, 1996 and 2004.



Forest Operations and Silviculture Manual. Ministry of Natural Resources, 1995. 64 p.

Forest Resource Assessment Policy. Ministry of Natural Resources, 2003. 40 p.

Forest Resources of Ontario 2006. Ministry of Natural Resources, 2006. 137 p.

Forestry Act. Statutes of Ontario, R.S.O. 1990, Chapter F.26.

Management Guidelines for Forestry and Resource-Based Tourism, 2001. 37p.

Municipal Act. Statutes of Ontario, S.O. 2001, Chapter 25.

Municipal Act, 2001. Statutes of Ontario, R.S.O. 1990, Chapter F.26.

Ontario Breeding Bird Atlas (second edition). Bird Studies Canada, (online). (http://www.birdsontario.org/atlas/atlasmain.html).

Ontario Wetland Evaluation System: Northern Manual. Ministry of Natural Resources, 1993. 181 p. + app.

Ontario's Approach To Wilderness: A Policy. Ministry of Natural Resources, 1997. 9 p.

Planning Act. Statutes of Ontario, R.S.O. 1990, Chapter P.13 and Regulations.

Provincial Wood Supply Strategy. Ministry of Natural Resources, 2004.

Professional Foresters Act. Statutes of Ontario, 2000.

Policy Framework for Sustainable Forests. Ministry of Natural Resources, 1995. 6 p.

Reasons for Decision and Decision: Class Environmental Assessment by the Ministry of Natural Resources for Timber Management on Crown Lands in Ontario. Environmental Assessment Board, 1994. 561 p.

Scaling Manual (second edition). Ministry of Natural Resources, 2000. 125 p.

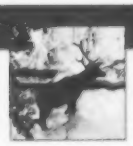
Silvicultural Effectiveness Monitoring Manual for Ontario. Ministry of Natural Resources, 2001. 42 p.

State of the Forest Report, 2006. Ministry of Natural Resources, 2007. 338 p.

Statement of Environmental Values. Ministry of Natural Resources, 1995. 12 p.

Timber Management Guidelines for the Protection of Fish Habitat. Ministry of Natural Resources, 1988. 14 p.

Timber Management Guidelines for the Provision of Moose Habitat. Ministry of Natural Resources, 1988. 33 p.


Tourism and Forestry Industry Memorandum of Understanding. Ministry of Natural Resources, 2000. 7 p.

Old Growth Forest Definitions for Ontario . Ministry of Natural Resources, 2003.